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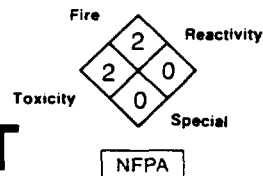
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0908-4092



WD-40[®]



MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Manufacturer: WD-40 Company
Address: 1061 Cudahy Place (92110)
P.O. Box 80607
San Diego, California
92138-9021

Emergency Telephone: (619) 275-1400
Chemical Name: Organic Mixture
Trade Name: WD-40 Aerosol

II. HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	%	Exposure Limit ACGIH/OSHA
Aliphatic Petroleum Distillates	8052-41-3	50	100 ppm (PEL)
A-70 Hydrocarbon Propellant	68476-85-7	25	1000 ppm (PEL)
Petroleum Base Oil	8012-95-1	> 15	5 mg/M ³ (TWA)
Corrosion Inhibitor	Proprietary Mixture	< 10	5 mg/M ³ (TWA)
Wetting Agent	Proprietary Mixture	< 5	500 ppm (PEL)
Fragrance	Proprietary Mixture	< 5	NDA

III. PHYSICAL DATA

Boiling Point:	NA	Evaporation Rate:	Not determined
Vapor Density: (air = 1)	Greater than 1	Vapor Pressure:	50 PSI @ 70°F
Solubility in Water:	Insoluble	Appearance:	Light amber
Specific Gravity (H ₂ O = 1)	.710 @ 70°F	Odor:	Characteristic odor
Percent Volatile (volume):	80%		

IV. FIRE AND EXPLOSION

Flash Point:	NA to aerosol cans
Flammable Limits:	(propellant portion) [Lel] 1.8% [Uel] 9.5%
Extinguishing Media:	CO ₂ , Dry Chemical
Special Fire Fighting Procedures:	None
Unusual Fire and Explosion Hazards:	Considered "extremely flammable" under Consumer Product Safety Commission regulations.

V. HEALTH HAZARD INFORMATION

Threshold Limit Value

Aliphatic Petroleum Distillates (Stoddard solvent) lowest TLV (ACGIH 100 ppm.)

Symptoms of Overexposure

Inhaled Vapor: May cause anesthesia, headache, dizziness, nausea and upper respiratory irritation.

Skin Contact: May cause drying of skin and or irritation.

Eye Contact: May cause irritation, tearing and redness.

Swallowed: May cause irritation, nausea, vomiting and diarrhea.

Aspiration into Lungs: May cause chemical pneumonitis.

First Aid Emergency Procedures

Swallowed: Do not induce vomiting, seek medical attention.

Eye Contact: Immediately flush eyes with large amounts of water for 15 minutes.

Skin Contact: Wash with soap and water.

Inhaled: Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

Suspected Cancer Agent

Yes _____ No X

The components in this mixture have been found to be noncarcinogenic by IARC and NTP.

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VI. REACTIVITY DATA

Stability:	Stable <u>X</u>	Unstable _____
Conditions to avoid:	NA	
Incompatibility:	Strong oxidizing materials	
Hazardous decomposition products:	NA	
Hazardous polymerization:	May occur _____	Will not occur <u>X</u>

VII. SPILL OR LEAK PROCEDURES

Spill Response Procedures

Spill unlikely from aerosol cans. Leaking cans should be placed in plastic bag or open pail until pressure has dissipated.

Waste Disposal Method

Empty aerosol cans should not be punctured or incinerated; bury in land fill. Liquid should be incinerated or buried in land fill.

VIII. SPECIAL HANDLING INFORMATION

Ventilation:	Sufficient to keep solvent vapor less than TLV.
Respiratory Protection:	None required.
Protective Gloves:	None required.
Eye Protection:	None required.
Other Protective Equipment:	None required.

IX. SPECIAL PRECAUTIONS

Keep from sources of ignition, do not take internally. Avoid excessive inhalation of spray particles. Do not puncture, incinerate or store container above 120°F.

X. TRANSPORTATION DATA

Domestic Surface

Description: Consumer Commodity
Hazard Class: ORM-D
ID No.: NONE
Label Required: Consumer Commodity (ORM-D)

Domestic Air

Description: Consumer Commodity (Flammable Gas-Aerosol products)
Hazard Class: ORM-D
ID No.: NONE
Label Required: Consumer Commodity (ORM-D-AIR)

SIGNATURE: R. Miles



TITLE: Technical Director

REVISION DATE: April 1986

SUPERSEDES: December 1985

NA = Not applicable

NDA = No data available

< = Less than

> = More than

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U.S. DEPARTMENT OF LABOR



WAGE AND LABOR STANDARDS ADMINISTRATION Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME The White & Bagley Company		EMERGENCY TELEPHONE NO. 617-791-3201
ADDRESS (Number, Street, City, State, and ZIP Code) 150 Worcester Center Blvd., Worcester, Mass. 01608		617-987-2217 E.F. Ahern (night)
CHEMICAL NAME AND SYNONYMS NA (Not Applicable)	TRADE NAME AND SYNONYMS W&B Grinding Concentrate 1500	
CHEMICAL FAMILY NA	FORMULA NA	

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None					

BOILING POINT (°F.)	equiv. to water	SPECIFIC GRAVITY (H ₂ O=1)	1.3
VAPOR PRESSURE (mm Hg.)	equiv. to water	PERCENT VOLATILE BY VOLUME (%)	57
VAPOR DENSITY (AIR=1)	approx. 2	EVAPORATION RATE (Water =1)	1
SOLUBILITY IN WATER			
APPEARANCE AND ODOR	concentrate: yellow-orange liquid - odor cinnamon diluted: green colored solution. No characteristic odor		

FLASH POINT (Method used)	NA	FLAMMABLE LIMITS	NA	LeI	UeI
EXTINGUISHING MEDIA	NA				
SPECIAL FIRE FIGHTING PROCEDURES	NA				
UNUSUAL FIRE AND EXPLOSION HAZARDS	Residue-laden cloths should be discarded in proper manner. Residues increase combustibility.				

THRESHOLD LIMIT VALUE (diluted form) Not listed by ACGIH*. Suggest using 5 mg/cu. meter set by ACGIH for mineral oil mists -- which is a visible concentration

EFFECTS OF OVEREXPOSURE

None known

EMERGENCY AND FIRST AID PROCEDURES

Skin: Wash off with soap and water

Eye: Flush with water for 15 minutes

*American Conference of Governmental Industrial Hygienists

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
Oil; Mineral Acids			
HAZARDOUS DECOMPOSITION PRODUCTS			
Oxides of nitrogen if mineral acids are added			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush with water and absorb

WASTE DISPOSAL METHOD Dilute with large amounts of water and dispose in accordance with local, state and federal regulations.

RESPIRATORY PROTECTION (Specify type)		None	
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	Yes	OTHER
PROTECTIVE GLOVES		No	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		No	Goggles when dispensing concentrate

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store away from area where mineral acids are stored

OTHER PRECAUTIONS None

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TRW-02711



THE WHITE & BAGLEY COMPANY

WORCESTER * MASS.

W&B GRINDING CONCENTRATE 1500

TECHNICAL DATA

W&B Grinding Concentrate 1500 is a concentrated water solution of mild organic amines and inorganic materials selected for their rust inhibiting and cooling properties.

Weight per gallon	10.65 lbs.
Viscosity	Watery fluid
Flash point	Non-flammable
Sulfates	None
Sulfur	None
Chlorine	None
Fat	None
pH (1% solution)	Approximately 9.6
Foam tendency (1% solution)	Nil
Storage stability	Stable at all temperatures down to -20°F
Resistance to bacterial decomposition	Inert

F-3-25-74

(supersedes F-5-21-64-3)

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Approximately 200
Stable at all temperatures
down to -20°C or lower
Isolated from bacterial
growth medium

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TRW-02713



coolant for grinding	sec. D
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1500

W&B Grinding Concentrate 1500

application For grinding ferrous metals and titanium, not recommended with aluminum or yellow metals.

description A chemical-type, water-soluble coolant concentrate which mixes with water to form a light-green transparent solution.

advantages

- promotes keen grinding action
- assures exceptional accuracy with high production
- keeps wheels open with less wheel dressing
- provides excellent rust protection
- settles chips rapidly
- keeps machines and parts clean
- mixes instantly with either hard or soft water
- non-foaming
- has exceptional stability in storage
- forms a very long-lasting, "sweet" solution
- stays free from odors
- non-irritating to the skin
- parts are easy to handle - not slippery
- remains clear over a long period of time
- very economical to use

mixing directions

for grinding steel 100 to 150 parts water to 1 part 1500

for grinding cast iron 80 to 100 parts water to 1 part 1500 (may produce ammonia odor if cast iron chips are not removed from coolant tank frequently).

for grinding titanium 10 parts water to 1 part 1500

THE WHITE+BAGLEY CO. 3

WORCESTER • MASS •

Rev. 2-23-66

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TRW-02715

MATERIAL SAFETY DATA SHEET

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SECTION I - MANUFACTURERS INFORMATION

PRODUCT CODE IDENTITY: 829B310 380 PRODUCT NAME: ~~MA1225040~~ BLACK HI-SOLIDS
NAME : COOK PAINT AND VARNISH COMPANY DATE OF MSDS: 11/07/86
ADDRESS: P.O. BOX 419389
KANSAS CITY, MO 64141-6389 EMERGENCY TELEPHONE: 816-391-6000
INFORMATION TELEPHONE: 816-391-6003

ATTN: SAFETY AND HEALTH OFFICER
TRW INC FASTENERS DIV
265 THIRD STREET
CAMBRIDGE MA 02142

CUSTOMER NUMBER: 543462
DATE PRINTED: 08/10/87

SECTION II - HAZARDOUS INGREDIENTS

BUTYL ALCOHOL

CAS #: 71-36-3 PERCENT: 5.000 VAPOR PRESSURE: 4.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 50 PPM (150 MG/CU.M.) SKIN, CEILING
OSHA PEL: 100 PPM (300 MG/CU.M.)

TOLUENE

CAS #: 108-88-3 PERCENT: LESS THAN 5 VAPOR PRESSURE: 22.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 100 PPM (375 MG/CU.M.)
ACGIH TLV/STEL: 150 PPM (560 MG/CU.M.)
OSHA PEL: 200 PPM (750 MG/CU.M.)
OSHA PEL/CEILING: 300 PPM (1120 MG/CU.M.)
OTHER: OSHA: 500 PPM PEAK

CARBON BLACK

CAS #: 1333-86-4 PERCENT: LESS THAN 5 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 3.5MG/CU.M.
ACGIH TLV/STEL: 7MG/CU.M.
OSHA PEL: 3.5MG/CU.M.

CARBON BLACK

CAS #: 1333-86-4 PERCENT: LESS THAN 5 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 3.5MG/CU.M.
OSHA PEL: 3.5MG/CU.M.

BARIUM SULPHATE

CAS #: 7727-43-7 PERCENT: 5.000 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M.

TALC (HYDROUS MAGNESIUM SILICATE)

CAS #: 14807-96-6 PERCENT: 5.000 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 2 MG/CU.M. (RESPIRABLE DUST)
OSHA PEL: 20 M PPCF

SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC

CAS #: 64742-95-6 PERCENT: 10.000 VAPOR PRESSURE: 3.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: NONE ESTABLISHED

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MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 829B310 380 PRODUCT NAME: WA12EN848 BLACK HI-SOLIDS

OSHA PEL: NONE ESTABLISHED
OTHER: TLV/TWA: 100 PPM, ESTIMATED

SILICA, AMORPHOUS

CAS #: 7631-86-9 PERCENT: 5.000 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 5 MG/CU.M. RESPIRABLE DUST, 10MG/CU.M. TOTAL DUST
OSHA PEL: 20M PPCF AS DUST

ISOPROPYL ALCOHOL

CAS #: 67-63-0 PERCENT: LESS THAN 5 VAPOR PRESSURE: 33.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 400 PPM (980 MG/CU.M.)
ACGIH TLV/STEL: 500 PPM (1225 MG/CU.M.)
OSHA PEL: 400 PPM (980 MG/CU.M.)

METHYL ETHYL KETONE

CAS #: 78-93-3 PERCENT: LESS THAN 5 VAPOR PRESSURE: 71.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 200 PPM (590 MG/CU.M.)
ACGIH TLV/STEL: 300 PPM (885 MG/CU.M.)
OSHA PEL: 200 PPM (590 MG/CU.M.)

SECTION III - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE TO PRODUCT. PRIMARY ROUTES OF ENTRY ARE:

- EYE CONTACT: LIQUID AND VAPOR CAN BE IRRITATING TO EYES. SYMPTOMS ARE TEARING, REDNESS AND DISCOMFORT.
- SKIN CONTACT: CAN CAUSE IRRITATION. CAN CAUSE DEFATTING OF SKIN WHICH CAN LEAD TO DERMATITIS.
- INHALATION: ANESTHETIC. OVEREXPOSURE CAN CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. CONTINUED OVEREXPOSURE CAN LEAD TO CENTRAL NERVOUS SYSTEM DEPRESSION CHARACTERIZED BY THE FOLLOWING PROGRESSIVE STEPS IF SEVERE OVEREXPOSURE IS CONTINUED: HEADACHE, DIZZINESS, NAUSEA AND LOSS OF CONSCIOUSNESS.
- REPORTS HAVE ASSOCIATED REPEATED OR PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.
- INGESTION: SWALLOWING CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS.

EMERGENCY AND FIRST AID PROCEDURES:

IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CONTAMINATED CLOTHING. THOROUGHLY CLEAN CONTAMINATED SHOES. IF AFFECTED BY INHALATION OF VAPORS OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED, GET MEDICAL ATTENTION.

SECTION IV - PHYSICAL DATA

BOILING POINT, DEG.F. 175

VAPOR DENSITY IS HEAVIER THAN AIR

MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 829B310 380 PRODUCT NAME: WA12EN848 BLACK HI-SOLIDS

WEIGHT PER GALLON: 9.72

EVAPORATION RATE IS SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME: 39.820

SECTION V - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID CLASS 1B

FLASH POINT SETA CLOSED CUP, DEG F: 23

DOT HAZARD CLASS: RED-LABEL, FLAMMABLE LIQUID

LEL: 1.00

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER FOG.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

VAPORS MAY CAUSE FLASH FIRE. KEEP CONTAINERS TIGHTLY CLOSED AND ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND FLAME. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

IF APPLIED IN CONFINED AREAS AND TANKS, USE ONLY EXPLOSION-PROOF AND PROPERLY GROUNDED EQUIPMENT, SPARK-PROOF TOOLS AND SPARK-PROOF SHOES.

SPECIAL FIRE FIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NONE UNDER NORMAL CONDITIONS.

CONDITIONS TO AVOID: ELEVATED TEMPERATURES.

INCOMPATIBILITY (MATERIALS TO AVOID):

STRONG ACIDS AND STRONG OXIDIZING AGENTS. IF THIS PRODUCT IS NOT WATER REDUCIBLE, AVOID WATER.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION OR COMBUSTION CAN PRODUCE FUMES CONTAINING ORGANIC ACIDS, CARBON DIOXIDE AND CARBON MONOXIDE.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. CONTAIN AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS. INCINERATE IN APPROVED FACILITY.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

DO NOT BREATHE VAPORS OR SPRAY MIST. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR (NIOSH/MSHA APPROVED) DURING APPLICATION AND OTHER USE OF THIS PRODUCT UNTIL VAPORS AND MISTS ARE EXHAUSTED, UNLESS AIR MONITORING DEMONSTRATES VAPOR AND MIST LEVELS ARE BELOW APPLICABLE LIMITS. FOLLOW RESPIRATOR MANUFACTURER'S DIRECTIONS FOR RESPIRATOR USE. USE APPROVED CHEMICAL/MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICLES AND VAPORS. IN CONFINED AREAS, USE APPROVED AIR SUPPLIED RESPIRATORS OR HOODS. OBSERVE OSHA STANDARD 29CFR 1910.134.

TRW-02718

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MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 8298310 380

PRODUCT NAME: WA12EN848 BLACK HI-SOLIDS

VENTILATIONS:

PROVIDE GENERAL CLEAN AIR DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE AIR CONTAMINANT CONCENTRATION BELOW THE LOWER EXPLOSION LIMIT AND BELOW CURRENT APPLICABLE EXPOSURE LIMITS IN THE MIXING, APPLICATION AND CURING AREAS; AND TO REMOVE DECOMPOSITION PRODUCT DURING WELDING AND FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT. IN CONFINED AREAS, USE ONLY WITH FORCED VENTILATION ADEQUATE TO KEEP VAPOR CONCENTRATION BELOW 20% OF LOWER EXPLOSION LIMITS. REFER TO OSHA STANDARDS 29CFR 1910.94, 1910.107, 1910.108.

NOTE HEAVY SOLVENT VAPORS SHOULD BE REMOVED FROM LOWER LEVELS OF THE WORK AREA AND ALL IGNITION SOURCES (NONEXPLOSION-PROOF MOTORS, ETC.) SHOULD BE ELIMINATED.

PROTECTIVE GLOVES: USE SOLVENT IMPERMEABLE GLOVES TO AVOID CONTACT WITH PRODUCT

EYE PROTECTION:

AVOID CONTACT WITH EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS, CHEMICAL GOGGLES, FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:

AVOID CONTACT WITH SKIN. USE PROTECTIVE CLOTHING. PREVENT CONTACT WITH CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING, INCLUDING SHOES, BEFORE REUSE.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINERS CLOSED WHEN NOT IN USE AND UPRIGHT TO PREVENT LEAKAGE.

OTHER PRECAUTIONS:

CONTAINERS SHOULD BE GROUNDED WHEN POURING. DO NOT TAKE INTERNALLY. WASH HANDS AFTER USING AND BEFORE SMOKING OR EATING. EMPTIED CONTAINERS MAY RETAIN HAZARDOUS RESIDUE AND EXPLOSIVE VAPORS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. DO NOT CUT, PUNCTURE OR WELD ON OR NEAR EMPTIED CONTAINERS. FOLLOW ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET UNTIL CONTAINER IS THOROUGHLY CLEANED OR DESTROYED. IF THIS PRODUCT IS BLENDED WITH OTHER COMPONENTS SUCH AS THINNERS, CONVERTER, COLORANTS AND CATALYSTS PRIOR TO USE, READ ALL WARNING LABELS. ANY MIXTURE OF COMPONENTS WILL HAVE HAZARDS OF ALL COMPONENTS. FOLLOW ALL PRECAUTIONS. IF SPRAYING THIS MATERIAL, KEEP SPRAY BOOTHS CLEAN. AVOID BUILDUP OF SPRAY DUST OR OVERSPRAY IN BOOTHS OR DUCTS.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

DISCLAIMER AND LIMITATION OF LIABILITY

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TRW-02719

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MATERIAL SAFETY DATA SHEET

SECTION I - MANUFACTURERS INFORMATION

PRODUCT CODE IDENTITY: 829A369
NAME: COOK PATENT FASTENERS DIV
ADDRESS: 265 THIRD STREET
CAMBRIDGE MA 02142
PRODUCT NAME: VALZEN9250 RED SLAVE
DATE OF MSDS: 02/03/89
EMERGENCY TELEPHONE: 816-391-6000
INFORMATION TELEPHONE: 816-391-6003

ATTN: SAFETY AND HEALTH OFFICER
TRW INC FASTENERS DIV
265 THIRD STREET
CAMBRIDGE MA 02142

CUSTOMER NUMBER: 543462
DATE PRINTED: 03/03/89
COMPLEX: 380

SECTION II - HAZARDOUS INGREDIENTS

CHROMIUM, ANTIMONY TRIOXIDE, TITANIUM DIOXIDE COMPOUND, 4% CHROMIUM (CR) & 10% ANTIMONY (SB)

CAS #: 068186-90-3 WT. %: LESS THAN 1 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 0.5MG/CU.M. AS CHROMIUM III/0.5MG/CU.M. AS ANTIMONY
OSHA PEL: 0.5MG/CU.M. AS ANTIMONY/1.0MG/CU.M. AS CHROMIUM

BARIUM SULPHATE, 59% BARIUM (BA)

CAS #: 007727-43-7 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M.

TOLUENE

CAS #: 000108-88-3 WT. %: 5.000 VAPOR PRESSURE: 22.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 100 PPM (375 MG/CU.M.)
ACGIH TLV/STEL: 150 PPM (560 MG/CU.M.)
OSHA PEL: 200 PPM (750 MG/CU.M.)
OSHA PEL/CEILING: 300 PPM (1120 MG/CU.M.)
OTHER: OSHA: 500 PPM PEAK

N-BUTYL ALCOHOL

CAS #: 000071-36-3 WT. %: 5.000 VAPOR PRESSURE: 4.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 50 PPM (150 MG/CU.M.) SKIN, CEILING
OSHA PEL: 100 PPM (300 MG/CU.M.)

N-BUTYL ACETATE

CAS #: 000123-86-4 WT. %: 5.000 VAPOR PRESSURE: 8.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 150 PPM (710 MG/CU.M.)
ACGIH TLV/STEL: 200 PPM (950 MG/CU.M.)
OSHA PEL: 150 PPM (710 MG/CU.M.)

0908-4105

TRW-02720

PRODUCT CODE IDENTITY: 829A369

PRODUCT NAME: WA12EN9230 MED. SLATE ENL

SQL NT NAPHTHA (PETROLEUM) LIGHT AROMATIC

CAS #: 064742-95-6

WT. %: 10.000

VAPOR PRESSURE: 3.0
(MMHG/DEG F)

EXPOSURE LIMIT:

ACGIH TLV/TWA:

NONE ESTABLISHED

OSHA PEL:

NONE ESTABLISHED

OTHER:

SUPPLIER RECOMMENDS: TLV/TWA 50 PPM

SILICA, AMORPHOUS

CAS #: 007631-86-9

WT. %: 10.000

VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:

ACGIH TLV/TWA:

10MG/CU.M. TOTAL DUST

OSHA PEL:

20M PPCF AS DUST

METHYL ETHYL KETONE

CAS #: 000078-93-3

WT. %: 5.000

VAPOR PRESSURE: 71.0
(MMHG/DEG F)

EXPOSURE LIMIT:

ACGIH TLV/TWA:

200 PPM (590 MG/CU.M.)

ACGIH TLV/STEL:

300 PPM (885 MG/CU.M.)

OSHA PEL:

200 PPM (590 MG/CU.M.)

THIS MATERIAL CONTAINS INGREDIENTS COVERED BY THE CALIFORNIA "SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986" (PROPOSITION 65).

SECTION III - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE TO PRODUCT. PRIMARY ROUTES OF ENTRY ARE:

EYE CONTACT: IRRITATION. SYMPTOMS ARE TEARING, REDNESS AND DISCOMFORT.

SKIN CONTACT: IRRITATION. CAN CAUSE DEFATTING OF SKIN WHICH MAY LEAD TO DERMATITIS.

INHALATION: IRRITATION TO NOSE AND THROAT. EXTENDED OR REPEATED EXPOSURE TO CONCENTRATIONS ABOVE THE RECOMMENDED EXPOSURE LIMITS MAY CAUSE BRAIN OR NERVOUS SYSTEM DEPRESSION, CAUSING DIZZINESS, HEADACHE OR NAUSEA AND IF CONTINUED INDEFINITELY, LOSS OF CONSCIOUSNESS, LIVER AND KIDNEY DAMAGE.

REPORTS HAVE ASSOCIATED REPEATED OR PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

INGESTION: CAN CAUSE MOUTH, THROAT, ESOPHAGUS AND STOMACH IRRITATION, VOMITING AND DIARRHEA.

MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT: PREEXISTING EYE, SKIN, LIVER, KIDNEY AND RESPIRATORY DISORDERS.

EMERGENCY AND FIRST AID PROCEDURES:

IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF AFFECTED BY INHALATION OF VAPORS OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED, GET MEDICAL ATTENTION IMMEDIATELY.

OTHER HEALTH HAZARDS:

ROMIUM, ANTIMONY TRIOXIDE, TITANIUM DIOXIDE COMPOUND CONTAINS TRIVALENT CHROMIUM WHICH IS CLASSIFIED BY THE INTERNATIONAL AGENCY FOR RESEARCH ON

PRODUCT CODE IDENTITY: 829A369

PRODUCT NAME: WA12EN9230 MED. SLATE ENL

NCER (IARC) AS "NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS" GROUP 3) AND BY THE NATIONAL TOXICITY PROGRAM (NTP) AS A HUMAN CARCINOGEN (CLASS A). ANTIMONY TRIOXIDE IS NOT LISTED AS A CARCINOGEN BY IARC, NTP AND OSHA; HOWEVER, LONG TERM INHALATION STUDIES INDICATE ANTIMONY TRIOXIDE CAUSES MALIGNANT LUNG TUMORS IN LABORATORY RATS. RISK OF CANCER DEPENDS ON DURATION AND LEVEL OF EXPOSURE.

SECTION IV - PHYSICAL DATA

BOILING POINT, DEG. F. 175

VAPOR DENSITY IS HEAVIER THAN AIR

WEIGHT PER GALLON: 10.45

EVAPORATION RATE IS SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME: 41.518

SECTION V - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID CLASS 1B

FLASH POINT SETA CLOSED CUP, DEG F: 23

DOT HAZARD CLASS: RED-LABEL, FLAMMABLE LIQUID

LEL: 1.00

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER FOG.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

VAPORS MAY CAUSE FLASH FIRE. KEEP CONTAINERS TIGHTLY CLOSED AND ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND FLAME. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

APPLIED IN CONFINED AREAS AND TANKS, USE ONLY EXPLOSION-PROOF AND PROPERLY GOUNDED EQUIPMENT, SPARK-PROOF TOOLS AND SPARK-PROOF SHOES.

SPECIAL FIRE FIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NONE UNDER NORMAL CONDITIONS.

CONDITIONS TO AVOID: ELEVATED TEMPERATURES.

INCOMPATIBILITY (MATERIALS TO AVOID):

STRONG ACIDS AND STRONG OXIDIZING AGENTS. IF THIS PRODUCT IS NOT WATER REDUCIBLE, AVOID WATER.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION OR COMBUSTION CAN PRODUCE FUMES CONTAINING ORGANIC ACIDS, CARBON DIOXIDE AND CARBON MONOXIDE.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. CONTAIN AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS. INCINERATE IN APPROVED FACILITY.

0908-4107

TRW-02722

PRODUCT CODE IDENTITY: 829A369

PRODUCT NAME: WA12EN9230 MED. SLATE ENL

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

DO NOT BREATHE VAPORS OR SPRAY MIST. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR (NIOSH/MSHA APPROVED) DURING APPLICATION AND OTHER USE OF THIS PRODUCT UNTIL VAPORS AND MISTS ARE EXHAUSTED, UNLESS AIR MONITORING DEMONSTRATES VAPOR AND MIST LEVELS ARE BELOW APPLICABLE LIMITS. FOLLOW RESPIRATOR MANUFACTURER'S DIRECTIONS FOR RESPIRATOR USE. USE APPROVED CHEMICAL/MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICLES AND VAPORS. IN CONFINED AREAS, USE APPROVED AIR SUPPLIED RESPIRATORS OR HOODS. OBSERVE OSHA STANDARD 29CFR 1910.134.

VENTILATION:

PROVIDE GENERAL CLEAN AIR DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE AIR CONTAMINANT CONCENTRATION BELOW THE LOWER EXPLOSION LIMIT AND BELOW CURRENT APPLICABLE EXPOSURE LIMITS IN THE MIXING, APPLICATION AND CURING AREAS; AND TO REMOVE DECOMPOSITION PRODUCT DURING WELDING AND FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT. IN CONFINED AREAS, USE ONLY WITH FORCED VENTILATION ADEQUATE TO KEEP VAPOR CONCENTRATION BELOW 20% OF LOWER EXPLOSION LIMITS. REFER TO OSHA STANDARDS 29CFR 1910.94, 1910.107, 1910.108.

NOTE: HEAVY SOLVENT VAPORS SHOULD BE REMOVED FROM LOWER LEVELS OF THE WORK AREA AND ALL IGNITION SOURCES (NONEXPLOSION-PROOF MOTORS, ETC.) SHOULD BE ELIMINATED.

PROTECTIVE GLOVES: USE SOLVENT IMPERMEABLE GLOVES TO AVOID CONTACT WITH PRODUCT

EYE PROTECTION:

DO NOT GET IN EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS. CHEMICAL GOGGLES, FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:

DO NOT GET IN EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS. CHEMICAL GOGGLES, FACE SHIELDS.

DO NOT CONTACT WITH SKIN. USE PROTECTIVE CLOTHING. PREVENT CONTACT WITH CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING, INCLUDING SHOES, BEFORE REUSE.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINERS CLOSED WHEN NOT IN USE AND UPRIGHT TO PREVENT LEAKAGE.

OTHER PRECAUTIONS:

CONTAINERS SHOULD BE GROUNDED WHEN POURING. DO NOT TAKE INTERNALLY. WASH HANDS AFTER USING AND BEFORE SMOKING OR EATING. EMPTIED CONTAINERS MAY RETAIN HAZARDOUS RESIDUE AND EXPLOSIVE VAPORS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. DO NOT CUT, PUNCTURE OR WELD ON OR NEAR EMPTIED CONTAINERS. FOLLOW ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET UNTIL CONTAINER IS THOROUGHLY CLEANED OR DESTROYED. IF THIS PRODUCT IS BLENDED WITH OTHER COMPONENTS SUCH AS THINNERS, CONGREGATOR, COLORANTS AND CATALYSTS PRIOR TO USE, READ ALL WARNING LABELS. ANY MIXTURE OF COMPONENTS WILL HAVE HAZARDS OF ALL COMPONENTS. FOLLOW ALL PRECAUTIONS. IF SPRAYING THIS MATERIAL, KEEP SPRAY BOOTHS CLEAN. AVOID BUILDUP OF SPRAY DUST OR OVERSPRAY IN BOOTHS OR DUCTS.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

SECTION X - SARA TITLE III INFORMATION

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND OF 40 CFR PART 372.

0908-4108

TRW-02723

MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 829A369

PRODUCT NAME: ~~VALI25M9230 MED-STATE-ENH~~

CHEMICAL NAME	CAS NUMBER	% BY WEIGHT	SARA TITLE III SECTION 311 AND 312 HAZARD CATAGORIES
CHROMIUM, ANTIMONY DE, TITANIUM DIOXIDE COMP OUND, 4% CHROMIUM (CR) & 10% ANTIMONY (SB)	068186-90-3	1.0420	DELAYED (CHRONIC)
BARIUM SULPHATE, 59% BARI UM (BA)	007727-43-7	4.6740	DELAYED (CHRONIC)
TOLUENE	000108-88-3	3.9480	IMMEDIATE (ACUTE) DELAYED (CHRONIC) FIRE HAZARD
N-BUTYL ALCOHOL	000071-36-3	5.7060	IMMEDIATE (ACUTE) DELAYED (CHRONIC) FIRE HAZARD
N-BUTYL ACETATE	000123-86-4	3.8380	IMMEDIATE (ACUTE) DELAYED (CHRONIC) FIRE HAZARD
METHYL ETHYL KETONE	000078-93-3	2.8100	IMMEDIATE (ACUTE) DELAYED (CHRONIC) FIRE HAZARD

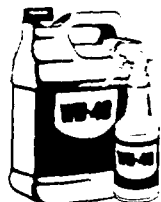
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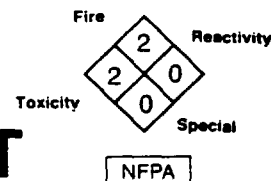
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0908-4109

TRW-02724



WD-40®



MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Manufacturer: WD-40 Company
Address: 1061 Cudahy Place (92110)
P.O. Box 80607
San Diego, California
92138-9021

Emergency Telephone: (619) 275-1400
Chemical Name: Organic Mixture
Trade Name: WD-40 Bulk Liquid

II. HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	%	Exposure Limit ACGIH/OSHA
Aliphatic Petroleum Distillates	8052-41-3	70	100 ppm (PEL)
Petroleum Base Oil	8012-95-1	20	5 mg/M ³ (TWA)
Corrosion Inhibitor	Proprietary Mixture	< 10	5 mg/M ³ (TWA)
Wetting Agent	Proprietary Mixture	< 5	500 ppm (PEL)
Fragrance	Proprietary Mixture	< 5	NDA

III. PHYSICAL DATA

Boiling Point:	300°F (minimum)	Evaporation Rate:	Not determined
Vapor Density (air = 1):	Greater than 1	Vapor Pressure:	Not determined
Solubility in Water:	Insoluble	Appearance:	Cloudy light amber
Specific Gravity (H ₂ O = 1):	.800 @ 70°F	Odor:	Characteristic odor
Percent Volatile (volume):	74%		

IV. FIRE AND EXPLOSION

Flash Point:	Tag Open Cup 110°F (minimum)
Flammable Limits:	(solvent portion) [Lel] 1.0% [Uel] 6.0%
Extinguishing Media:	CO ₂ , Dry Chemical, Foam
Special Fire Fighting Procedures:	None
Unusual Fire and Explosion Hazards:	None

V. HEALTH HAZARD INFORMATION

Threshold Limit Values

Aliphatic Petroleum Distillates (Stoddard solvent) lowest TLV (ACGIH 100 ppm.)

Symptoms of Overexposure

Inhaled Vapor: May cause anesthesia, headache, dizziness, nausea and upper respiratory irritation.

Skin Contact: May cause drying of skin and or irritation.

Eye Contact: May cause irritation, tearing and redness.

Swallowed: May cause irritation, nausea, vomiting and diarrhea.

Aspiration into Lungs: May cause chemical pneumonitis.

First Aid Emergency Procedures

Swallowed: Do not induce vomiting, seek medical attention.

Eye Contact: Immediately flush eyes with large amounts of water for 15 minutes.

Skin Contact: Wash with soap and water.

Inhaled: Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

Suspected Cancer Agent

Yes _____ No ☒ X

The components in this mixture have been found to be noncarcinogenic by IARC and NTP.

VI. REACTIVITY DATA

Stability:	Stable <u> X </u>	Unstable <u> </u>
Conditions to avoid:	NA	
Incompatibility:	Strong oxidizing materials	
Hazardous decomposition products:	NA	
Hazardous polymerization:	May occur <u> </u>	Will not occur <u> X </u>

VII. SPILL OR LEAK PROCEDURES

Spill Response Procedures

Absorb small quantities with sand, earth, sawdust. Large quantities pump into tank.

Waste Disposal Method

Incinerate liquid, bury saturated absorbent in land fill. Dispose of in accordance with local, state and federal regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation:	Sufficient to keep solvent vapor less than TLV.
Respiratory Protection:	None required.
Protective Gloves:	None required.
Eye Protection:	None required.
Other Protective Equipment:	None required.

IX. SPECIAL PRECAUTIONS

Keep from open flame, do not take internally. Avoid excessive inhalation of spray particles.

X. TRANSPORTATION DATA

Domestic Surface

Description: Petroleum Distillate Mixture
Hazard Class: Combustible Liquid
ID No.: UN 1268
Label Required: NONE, for containers less than 100 Gallons

Domestic Air

Description: Petroleum Distillate Mixture
Hazard Class: Combustible Liquid
Label Required: NONE, for containers less than 110 Gallons

SIGNATURE: R. Miles

TITLE: Technical Director

REVISION DATE: April 1986

SUPERSEDES: December 1985

NA = Not applicable

NDA = No data available

< = Less than

> = More than

0908-4111

TRW-02726

We believe the statements, technical information and recommendations contained herein are reliable. However, the data is provided without warranty, expressed or implied. It is the users responsibility both to determine safe conditions for use of this product and assume loss, damage or expense, direct or consequential, arising from its misuse. Before using product, read label.

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Statistics

MATERIAL SAFETY DATA SHEET

44-450

SECTION I

MANUFACTURER'S NAME Cook's Industrial Lubricants, Inc.		EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code) 5 North Stiles Street, Linden, N. J. 07036		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS WS-111
CHEMICAL FAMILY Mineral & Lard Oils	FORMULA	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS N			BASE METAL -N		
CATALYST O			ALLOYS O		
VEHICLE N E			METALLIC COATINGS N E		
SOLVENTS isopropanol	0.5		FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					

SECTION III PHYSICAL DATA

BOILING POINT (P.F.)		SPECIFIC GRAVITY (H ₂ O=1)	0.965
VAPOR PRESSURE (mm Hg)		PERCENT VOLATILE BY VOLUME (%)	0.54
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER	emulsifies		
APPEARANCE AND ODOR	light colored oil		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 340°F open cup	FLAMMABLE LIMITS	Lo	Hi
EXTINGUISHING MEDIA CO ₂ CCl ₄ Dry Chemical			
SPECIAL FIRE FIGHTING PROCEDURES Use standard oil fire techniques			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

TRW-02727

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE not applicable

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Excludes (b) (6))

Pure oxygen or strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wipe up

WASTE DISPOSAL METHOD

Standard oily waste disposal

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

None

VENTILATION

LOCAL EXHAUST

Normal

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE GLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

None

OTHER PRECAUTIONS

TRW-02728

0908-4113

HAZARD INFORMATION

REM Chemicals, Inc.
325 West Queen Street
Southington, CT 06489

Phone (203) 621-6755
Fax (203) 621-8822
Emergency Response # (203) 628-4372

RECOMMENDED PRACTICES

HEALTH Blue ----- 1
FLAMMABILITY Red ----- 0
REACTIVITY Yellow ----- 0
SPECIAL HAZARDS White ----- N/A

SECTION 2 - General Information

PRODUCT TRADE NAME REM® WS-503

CHEMICAL FAMILY & SYNONYMS Proprietary

CHEMICAL FAMILY Soap mixture

CAS NO. N/A

DOT SHIPPING NAME Non-Hazardous, cleaning liquid, freezable

DOT HAZARD CLASS Non-Hazardous

SECTION 3 - Hazardous Ingredients

Chemical Identity	CAS No.	%	ACGIH TLV	OSHA PEL
Not Available	-	-	-	-

0908-4114

TRW-02729

REM® WS-503

Page 2

Physical Data

Boiling Point (°F)	: 212° F
Specific Gravity (H ₂ O = 1)	: Water vapor
Vapor Pressure (mgHg)	: Water vapor
Percent Volatile by Vol %	: N/A
Vapor Density (Air = 1)	: Water vapor
Evaporation Rate	: N/A
Solubility in Water	: Infinite
pH	: 8.3
Appearance and Odor	: Liquid is light straw color no odor.

Fire and Explosion Data

Flash Point	: Not flammable
Flash Point Test Method	: Not flammable
Flammable Limits % by Vol LEL	: N/A
Flammable Limits % by Vol UEL	: N/A
Extinguishing Media	: This product is not flammable.
Special Fire Fighting Procedures:	None known
Unusual Fire Fighting Procedures:	None known

0908-4115

TRW-02730

REM® WS-503

Page 3

SHOWNOWS - Health Hazard Data**Threshold Limit Value** : None known**OSHA and ACGIH
Carcinogen** : N/A**Symptoms of Exposure** : Alkaline materials can on long term exposure defat the skin and lead to dermatitis.**Primary Route (s) of Entry** : Skin and eyes.**Emergency First Aid - Eyes** : Eye contact: does not present a significant eye irritation however, the material should be flushed from the eyes with water for 15 minutes.**Emergency First Aid - Skin** : Skin contact: the area in contact with the product should be flushed with water.**Emergency First Aid - Ingestion:** Seek medical attention.

0908-4116

TRW-02731

REM® WS-503

Page 4

SECTION 3 - Reactivity Data

Stability : Stable
Incompatibility : None known
Materials To Avoid : None known
Hazardous Polymerization : Will not
Conditions To Avoid : None known
Hazardous Decomposition Products: None known

SECTION 4 - Spill or Leak Procedures

Action to Take for Spills : The liquid if spilled should be absorbed with inert material and sent to disposal in accordance with Federal, State and local regulations.

Waste Disposal Method : Treat with lime to a pH of 6.5 - 9.5 in accordance with Federal, State and local regulations.

SECTION 5 - Special Protection Information

Eye Protection : Face shield or goggles
Skin Protection : Rubber gloves
Respiratory Protection : None required
Ventilation Recommended : General
Other Protection : None known

0908-4117

TRW-02732

REM® WS-503

Page 5

Precautions - **Special Precautions**

Precautions in Handling and Storage: Store at room temperature above 40° F.

Prepared by: Robert Zobbi
Date : July 2, 1992 (revised)
mw503

Title: Technical Director

0908-4118

TRW-02733

SECTION I - MANUFACTURERS INFORMATION

PRODUCT CODE IDENTITY: 829L319 380
NAME : ~~XXXXXXXXXX~~ AND VARNISH COMPANY
ADDRESS: P.O. BOX 419389
KANSAS CITY, MO 64141-6389

PRODUCT NAME: ~~XXXXXXXXXX~~
DATE OF MSDS: 10/26/87
EMERGENCY TELEPHONE: 816-391-6000
INFORMATION TELEPHONE: 816-391-6003

ATTN: SAFETY AND HEALTH OFFICER
TRW INC FASTENERS DIV
265 THIRD STREET
CAMBRIDGE MA 02142

CUSTOMER NUMBER: 543462
DATE PRINTED: 08/29/88

SECTION II - HAZARDOUS INGREDIENTS

N-BUTYL ALCOHOL

CAS #: 000071-36-3 PERCENT: 5.000 VAPOR PRESSURE: 4.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 50 PPM (150 MG/CU.M.) SKIN, CEILING
OSHA PEL: 100 PPM (300 MG/CU.M.)

TOLUENE

CAS #: 000108-88-3 PERCENT: 5.000 VAPOR PRESSURE: 22.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 100 PPM (375 MG/CU.M.)
ACGIH TLV/STEL: 150 PPM (560 MG/CU.M.)
OSHA PEL: 200 PPM (750 MG/CU.M.)
OSHA PEL/CEILING: 300 PPM (1120 MG/CU.M.)
OTHER: OSHA: 500 PPM PEAK

BARIUM SULPHATE

CAS #: 007727-43-7 PERCENT: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M.

TALC (HYDROUS MAGNESIUM SILICATE)

CAS #: 014807-96-6 PERCENT: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 2 MG/CU.M. (RESPIRABLE DUST)
OSHA PEL: 20 M PPCF

SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC

CAS #: 064742-95-6 PERCENT: 15.000 VAPOR PRESSURE: 3.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: NONE ESTABLISHED
OSHA PEL: NONE ESTABLISHED
OTHER: SUPPLIER RECOMMENDS: TLV/TWA 50 PPM

SILICA, AMORPHOUS

CAS #: 007631-86-9 PERCENT: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M. TOTAL DUST
OSHA PEL: 20M PPCF AS DUST

METHYL ETHYL KETONE

0908-4119

TRW-02734

PRODUCT CODE IDENTITY: 829L319 380 PRODUCT NAME: WA12EN8841 VY DK SAPPHIRE

CAS #: 000078-93-3

PERCENT: 5.000

VAPOR PRESSURE: 71.0
(MMHG/DEG F)

EXPOSURE LIMIT:

ACGIH TLV/TWA: 200 PPM (590 MG/CU.M.)

ACGIH TLV/STEL: 300 PPM (885 MG/CU.M.)

OSHA PEL: 200 PPM (590 MG/CU.M.)

THIS MATERIAL CONTAINS INGREDIENTS COVERED BY THE CALIFORNIA "SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986" (PROPOSITION 65).

SECTION III - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE TO PRODUCT. PRIMARY ROUTES OF ENTRY ARE:

EYE CONTACT: IRRITATION. SYMPTOMS ARE TEARING, REDNESS AND DISCOMFORT.

SKIN CONTACT: IRRITATION. CAN CAUSE DEFATTING OF SKIN WHICH MAY LEAD TO DERMATITIS.

INHALATION: IRRITATION TO NOSE AND THROAT. EXTENDED OR REPEATED EXPOSURE TO CONCENTRATIONS ABOVE THE RECOMMENDED EXPOSURE LIMITS MAY CAUSE BRAIN OR NERVOUS SYSTEM DEPRESSION, CAUSING DIZZINESS, HEADACHE OR NAUSEA AND IF CONTINUED INDEFINITELY, LOSS OF CONSCIOUSNESS, LIVER AND KIDNEY DAMAGE.

REPORTS HAVE ASSOCIATED REPEATED OR PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

INGESTION: MAY CAUSE MOUTH, THROAT, ESOPHAGUS AND STOMACH IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

MEDICAL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT:
PREEXISTING EYE, SKIN, LIVER, KIDNEY AND RESPIRATORY DISORDERS.

EMERGENCY AND FIRST AID PROCEDURES:

IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF AFFECTED BY INHALATION OF VAPORS OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED, GET MEDICAL ATTENTION IMMEDIATELY.

SECTION IV - PHYSICAL DATA

BOILING POINT, DEG. F. 175

VAPOR DENSITY IS HEAVIER THAN AIR

WEIGHT PER GALLON: 9.83

EVAPORATION RATE IS SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME: 40.354

SECTION V - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID CLASS 1B

FLASH POINT SETA CLOSED CUP, DEG F: 23

DOT HAZARD CLASS: RED-LABEL, FLAMMABLE LIQUID

LEL: 1.00

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER FOG.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

VAPORS MAY CAUSE FLASH FIRE. KEEP CONTAINERS TIGHTLY CLOSED AND ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND FLAME. NEVER USE WELDING OR CUTTING

MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 829L319 380 PRODUCT NAME: WA12EN8841 VY DK SAPPHIRE

TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

IF APPLIED IN CONFINED AREAS AND TANKS. USE ONLY EXPLOSION-PROOF AND PROPERLY GROUNDED EQUIPMENT, SPARK-PROOF TOOLS AND SPARK-PROOF SHOES.

SPECIAL FIRE FIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NONE UNDER NORMAL CONDITIONS.

CONDITIONS TO AVOID: ELEVATED TEMPERATURES.

INCOMPATIBILITY (MATERIALS TO AVOID):

STRONG ACIDS AND STRONG OXIDIZING AGENTS. IF THIS PRODUCT IS NOT WATER REDUCIBLE, AVOID WATER.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION OR COMBUSTION CAN PRODUCE FUMES CONTAINING ORGANIC ACIDS, CARBON DIOXIDE AND CARBON MONOXIDE.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. CONTAIN AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS. INCINERATE IN APPROVED FACILITY.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

DO NOT BREATHE VAPORS OR SPRAY MIST. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR (NIOSH/MSHA APPROVED) DURING APPLICATION AND OTHER USE OF THIS PRODUCT UNTIL VAPORS AND MISTS ARE EXHAUSTED, UNLESS AIR MONITORING DEMONSTRATES VAPOR AND MIST LEVELS ARE BELOW APPLICABLE LIMITS. FOLLOW RESPIRATOR MANUFACTURER'S DIRECTIONS FOR RESPIRATOR USE. USE APPROVED CHEMICAL/MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICLES AND VAPORS. IN CONFINED AREAS, USE APPROVED AIR SUPPLIED RESPIRATORS OR HOODS. OBSERVE OSHA STANDARD 29CFR 1910.134.

VENTILATIONS:

PROVIDE GENERAL CLEAN AIR DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE AIR CONTAMINANT CONCENTRATION BELOW THE LOWER EXPLOSION LIMIT AND BELOW CURRENT APPLICABLE EXPOSURE LIMITS IN THE MIXING, APPLICATION AND CURING AREAS; AND TO REMOVE DECOMPOSITION PRODUCT DURING WELDING AND FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT. IN CONFINED AREAS, USE ONLY WITH FORCED VENTILATION ADEQUATE TO KEEP VAPOR CONCENTRATION BELOW 20% OF LOWER EXPLOSION LIMITS. REFER TO OSHA STANDARDS 29CFR 1910.94, 1910.107, 1910.108.

NOTE: HEAVY SOLVENT VAPORS SHOULD BE REMOVED FROM LOWER LEVELS OF THE WORK AREA AND ALL IGNITION SOURCES (NONEXPLOSION-PROOF MOTORS, ETC.) SHOULD BE ELIMINATED.

PROTECTIVE GLOVES: USE SOLVENT IMPERMEABLE GLOVES TO AVOID CONTACT WITH PRODUCT

EYE PROTECTION:

DO NOT GET IN EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS. CHEMICAL GOGGLES, FACE SHIELDS.

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TRW-02736

PRODUCT CODE IDENTITY: 829L319 380

PRODUCT NAME: WA12EN8841 VV DK SAPPHIRE

OTHER PROTECTIVE EQUIPMENT:

AVOID CONTACT WITH SKIN. USE PROTECTIVE CLOTHING. PREVENT CONTACT WITH CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING, INCLUDING SHOES, BEFORE REUSE.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINERS CLOSED WHEN NOT IN USE AND UPRIGHT TO PREVENT LEAKAGE.

OTHER PRECAUTIONS:

CONTAINERS SHOULD BE GROUNDED WHEN POURING. DO NOT TAKE INTERNALLY. WASH HANDS AFTER USING AND BEFORE SMOKING OR EATING. EMPTIED CONTAINERS MAY RETAIN HAZARDOUS RESIDUE AND EXPLOSIVE VAPORS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. DO NOT CUT, PUNCTURE OR WELD ON OR NEAR EMPTIED CONTAINERS. FOLLOW ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET UNTIL CONTAINER IS THOROUGHLY CLEANED OR DESTROYED. IF THIS PRODUCT IS BLENDED WITH OTHER COMPONENTS SUCH AS THINNERS, CONVERTER, COLORANTS AND CATALYSTS PRIOR TO USE, READ ALL WARNING LABELS. ANY MIXTURE OF COMPONENTS WILL HAVE HAZARDS OF ALL COMPONENTS. FOLLOW ALL PRECAUTIONS. IF SPRAYING THIS MATERIAL, KEEP SPRAY BOOTHS CLEAN. AVOID BUILDUP OF SPRAY DUST OR OVERSPRAY IN BOOTHS OR DUCTS.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

DISCLAIMER AND LIMITATION OF LIABILITY

TO THE BEST OF OUR KNOWLEDGE, THE INFORMATION CONTAINED HEREIN IS ACCURATE. TO THE EXTENT ALLOWED BY LAW, THIS STATEMENT IS MADE IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND IS IN LIEU OF ANY OTHER OBLIGATIONS OR LIABILITY ON THE PART OF COOK PAINT AND VARNISH COMPANY.

COOK PAINT AND VARNISH COMPANY WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. FINAL DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR THE USE CONTEMPLATED, THE MANNER OF USE, AND WHETHER THE SUGGESTED USE INFRINGES ANY PATENT IS THE SOLE RESPONSIBILITY OF THE BUYER.

0908-4122

TRW-02737

TRW

Dennis F. Borsuk
617.494.5784

6/22

D. Norcross

Dick:

In which department is this
product used?

Dept.
230

Dennis

6/22

0908-4123

TRW-02738

SECTION I - MANUFACTURERS INFORMATION

PRODUCT CODE IDENTITY: 868A213 380 PRODUCT NAME: XXXXXXXXXXXXXXXXXXXX
NAME : COOK PAINT AND VARNISH COMPANY DATE OF MSDS: 06/09/87
ADDRESS: P.O. BOX 419389
KANSAS CITY, MO 64141-6389 EMERGENCY TELEPHONE: 816-391-6000
INFORMATION TELEPHONE: 816-391-6003

ATTN: SAFETY AND HEALTH OFFICER
TRW INC FASTENERS DIV
265 THIRD STREET
CAMBRIDGE MA 02142

CUSTOMER NUMBER: 543462
DATE PRINTED: 06/10/87

SECTION II - HAZARDOUS INGREDIENTS

ETHYLENE GLYCOL MONOPROPYL ETHER

CAS #: 2807-30-9 PERCENT: 10.000 VAPOR PRESSURE: 1.3
EXPOSURE LIMIT:
OTHER: MFG. RECOMMENDS: TLV/TWA 25 PPM (SKIN)

FORMALDEHYDE

CAS #: 50-00-0 PERCENT: 0.105 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 1 PPM
ACGIH TLV/STEL: 2 PPM
OSHA PEL: 3 PPM
OSHA PEL/CEILING: 5 PPM
OTHER: OSHA PEL/PEAK: 10 PPM

ISOBUTYL ALCOHOL

CAS #: 78-83-1 PERCENT: LESS THAN 5 VAPOR PRESSURE: 9.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 50 PPM (150 MG/CU.M.)
ACGIH TLV/STEL: 75 PPM (225 MG/CU.M.)
OSHA PEL: 100 PPM (300 MG/CU.M.)

XYLENE

CAS #: 1330-20-7 PERCENT: 25.000 VAPOR PRESSURE: 6.0
EXPOSURE LIMIT:
ACGIH TLV/TWA: 100 PPM (435 MG/CU.M.)
ACGIH TLV/STEL: 150 PPM (655 MG/CU.M.)
OSHA PEL: 100 PPM (435 MG/CU.M.)

TALC (HYDROUS MAGNESIUM SILICATE)

CAS #: 14807-96-6 PERCENT: 10.000 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 2 MG/CU.M. (RESPIRABLE DUST)
OSHA PEL: 20 M PPCF

ALUMINUM POWDER

CAS #: 7429-90-5 PERCENT: LESS THAN 5 VAPOR PRESSURE: N/A
EXPOSURE LIMIT:
ACGIH TLV/TWA: 10 MG/CU.M. AS ALUMINUM DUST
ACGIH TLV/STEL: 20 MG/CU.M. AS ALUMINUM DUST

SOLVENT NAPHTHA (PETROLEUM) MEDIUM ALIPHATIC

CAS #: 64742-88-7 PERCENT: LESS THAN 5 VAPOR PRESSURE: 1.7
EXPOSURE LIMIT:

TRW-02739

0908-4124

MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 868A213 380 PRODUCT NAME: W55A8242 DK.GRAY METALLIC

ACGIH TLV/TWA: NONE ESTABLISHED
OSHA PEL: NONE ESTABLISHED
OTHER: MFG RECOMMENDS. TLV/TWA=100PPM, TLV/STEL=200PPM

BIS(1,2,2,6-PENTAMETHYL-4-PIPERIDINYL) SEBACATE

CAS #: NOT ASSIGNED PERCENT: LESS THAN 5 VAPOR PRESSURE: N/A

EXPOSURE LIMIT:
ACGIH TLV/TWA: NONE ESTABLISHED
OSHA PEL: NONE ESTABLISHED

ETHYLENE GLYCOL MONOBUTYL ETHER

CAS #: 111-76-2 PERCENT: LESS THAN 5 VAPOR PRESSURE: 0.6

EXPOSURE LIMIT:
ACGIH TLV/TWA: 25 PPM (SKIN) (120 MG/CU.M.)
ACGIH TLV/STEL: 75 PPM (SKIN) (360 MG/CU.M.)
OSHA PEL: 50 PPM (SKIN) (240 MG/CU.M.)

SOLVENT NAPHTHA (PETROLEUM) LIGHT ALIPHATIC

CAS #: 64742-89-8 PERCENT: LESS THAN 5 VAPOR PRESSURE: 8.0

EXPOSURE LIMIT:
ACGIH TLV/TWA: 300 PPM (1350 MG/CU.M.)
ACGIH TLV/STEL: 400 PPM (1800 MG/CU.M.)

SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC

CAS #: 64742-95-6 PERCENT: 5.000 VAPOR PRESSURE: 3.0

EXPOSURE LIMIT:
ACGIH TLV/TWA: NONE ESTABLISHED
OSHA PEL: NONE ESTABLISHED
OTHER: TLV/TWA: 100 PPM, ESTIMATED

SECTION III - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE TO PRODUCT. PRIMARY ROUTES OF ENTRY ARE:

EYE CONTACT: LIQUID AND VAPOR CAN BE IRRITATING TO EYES. SYMPTOMS ARE TEARING, REDNESS AND DISCOMFORT.

SKIN CONTACT: CAN CAUSE IRRITATION. CAN CAUSE DEFATTING OF SKIN WHICH CAN LEAD TO DERMATITIS. TOXIC BY ABSORPTION THROUGH SKIN WITH SAME SYMPTOMS AS SHOWN BY INHALATION.

INHALATION: ANESTHETIC. OVEREXPOSURE CAN CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. CONTINUED OVEREXPOSURE CAN LEAD TO CENTRAL NERVOUS SYSTEM DEPRESSION CHARACTERIZED BY THE FOLLOWING PROGRESSIVE STEPS IF SEVERE OVEREXPOSURE IS CONTINUED: HEADACHE, DIZZINESS, NAUSEA AND LOSS OF CONSCIOUSNESS.

REPORTS HAVE ASSOCIATED REPEATED OR PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

INGESTION: SWALLOWING CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
PREEXISTING EYE, SKIN AND RESPIRATORY DISORDERS.

EMERGENCY AND FIRST AID PROCEDURES:

IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST

PRODUCT CODE IDENTITY: 868A213 380 PRODUCT NAME: W55A8242 DK.GRAY METALLIC

15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CONTAMINATED CLOTHING. THOROUGHLY CLEAN CONTAMINATED SHOES. IF AFFECTED BY INHALATION OF VAPORS OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED, GET MEDICAL ATTENTION.

OTHER HEALTH HAZARDS:

EXTENDED OVEREXPOSURE OF EXPERIMENTAL ANIMALS TO ETHYLENE GLYCOL MONOPROPYL ETHER VIA INHALATION, SKIN CONTACT AND INGESTION HAS BEEN FOUND TO PRODUCE TOXIC EFFECTS ON RED BLOOD CELLS. FORMALDEHYDE IS LISTED BY NTP, IARC AND ACGIH AS A CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS. HOWEVER, IARC CONCLUDED THERE IS INSUFFICIENT EVIDENCE TO DETERMINE IF FORMALDEHYDE CAUSES CANCER IN MAN. EXPOSURE OF EXPERIMENTAL ANIMALS TO ETHYLENE GLYCOL MONOBUTYL ETHER VIA INHALATION, SKIN ABSORPTION OR INGESTION PRODUCES A TOXIC EFFECT IN THE RED BLOOD CELL. HOWEVER, RED BLOOD CELL OSMOTIC FRAGILITY (A SENSITIVE INDICATOR OF RED BLOOD CELL TOXICITY) WAS NOT INCREASED IN HUMANS EXPOSED VIA INHALATION TO 195 PPM FOR 3 HOURS. THIS IS WELL ABOVE THE MAXIMUM TOLERATED LEVEL. IRRITATION OF EYES, NOSE AND THROAT NORMALLY OCCURS AT 100 PPM. THE JOOR DOES NOT HAVE GOOD WARNING PROPERTIES.

SECTION IV - PHYSICAL DATA

BOILING POINT, DEG. F. 223 VAPOR DENSITY IS HEAVIER THAN AIR
WEIGHT PER GALLON: 8.34 EVAPORATION RATE IS SLOWER THAN ETHER
PERCENT VOLATILE BY VOLUME: 67.471

SECTION V - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID CLASS 1B
FLASH POINT SETA CLOSED CUP, DEG F: 57
DOT HAZARD CLASS: RED-LABEL, FLAMMABLE LIQUID LEL: 0.90
EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER FOG.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

VAPORS MAY CAUSE FLASH FIRE. KEEP CONTAINERS TIGHTLY CLOSED AND ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND FLAME. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

IF APPLIED IN CONFINED AREAS AND TANKS, USE ONLY EXPLOSION-PROOF AND PROPERLY GROUNDED EQUIPMENT, SPARK-PROOF TOOLS AND SPARK-PROOF SHOES.

SPECIAL FIRE FIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NONE UNDER NORMAL CONDITIONS.
CONDITIONS TO AVOID: ELEVATED TEMPERATURES.

INCOMPATIBILITY (MATERIALS TO AVOID):

STRONG ACIDS AND STRONG OXIDIZING AGENTS. IF THIS PRODUCT IS NOT WATER REDUCIBLE, AVOID WATER.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION OR COMBUSTION CAN PRODUCE FUMES CONTAINING ORGANIC

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TRW-02741

PRODUCT CODE IDENTITY: 268A213 330 PRODUCT NAME: W55A8242 CK.GRAY METALLIC

ACIDS, CARBON DIOXIDE AND CARBON MONOXIDE.

OTHER REACTIVITY:
FORMALDEHYDE, AMMONIA AND/OR OXIDES OF NITROGEN CAN BE PRODUCED.
ALUMINUM MAY REACT WITH WATER, ACIDS AND ALKALIES TO FORM COMBUSTIBLE HYDROGEN GAS. ALUMINUM MAY REACT VIOLENTLY WITH HALOGENATED HYDROCARBONS.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. CONTAIN AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:
DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS. INCINERATE IN APPROVED FACILITY.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
DO NOT BREATHE VAPORS OR SPRAY MIST. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR (NIOSH/MSHA APPROVED) DURING APPLICATION AND OTHER USE OF THIS PRODUCT UNTIL VAPORS AND MISTS ARE EXHAUSTED, UNLESS AIR MONITORING DEMONSTRATES VAPOR AND MIST LEVELS ARE BELOW APPLICABLE LIMITS. FOLLOW RESPIRATOR MANUFACTURER'S DIRECTIONS FOR RESPIRATOR USE. USE APPROVED CHEMICAL/MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICLES AND VAPORS. IN CONFINED AREAS, USE APPROVED AIR SUPPLIED RESPIRATORS OR HOODS. OBSERVE OSHA STANDARD 29CFR 1910.134.

VENTILATIONS:
PROVIDE GENERAL CLEAN AIR DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE AIR CONTAMINANT CONCENTRATION BELOW THE LOWER EXPLOSION LIMIT AND BELOW CURRENT APPLICABLE EXPOSURE LIMITS IN THE MIXING, APPLICATION AND CURING AREAS; AND TO REMOVE DECOMPOSITION PRODUCT DURING WELDING AND FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT. IN CONFINED AREAS, USE ONLY WITH FORCED VENTILATION ADEQUATE TO KEEP VAPOR CONCENTRATION BELOW 20% OF LOWER EXPLOSION LIMITS. REFER TO OSHA STANDARDS 29CFR 1910.94, 1910.107, 1910.108.

NOTE HEAVY SOLVENT VAPORS SHOULD BE REMOVED FROM LOWER LEVELS OF THE WORK AREA AND ALL IGNITION SOURCES (NONEXPLOSION-PROOF MOTORS, ETC.) SHOULD BE ELIMINATED.

PROTECTIVE GLOVES: USE SOLVENT IMPERMEABLE GLOVES TO AVOID CONTACT WITH PRODUCT

EYE PROTECTION:
AVOID CONTACT WITH EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS, CHEMICAL GOGGLES, FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:
AVOID CONTACT WITH SKIN. USE PROTECTIVE CLOTHING. PREVENT CONTACT WITH CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING, INCLUDING SHOES, BEFORE REUSE.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINERS CLOSED WHEN NOT IN USE AND UPRIGHT TO PREVENT LEAKAGE.

OTHER PRECAUTIONS:
CONTAINERS SHOULD BE GROUNDED WHEN POURING. DO NOT TAKE INTERNALLY. WASH HANDS AFTER USING AND BEFORE SMOKING OR EATING. EMPTIED CONTAINERS MAY RETAIN HAZARDOUS RESIDUE AND EXPLOSIVE VAPORS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. DO NOT CUT, PUNCTURE OR WELD ON OR NEAR EMPTIED CONTAINERS. FOLLOW ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET UNTIL CONTAINER IS THOROUGHLY

0908-4127

TRW-02742

PRODUCT CODE IDENTITY: 868A213 380

PRODUCT NAME: W55A8242 DK.GRAY METALLIC

CLEANED OR DESTROYED. IF THIS PRODUCT IS BLENDED WITH OTHER COMPONENTS SUCH AS THINNERS, CONVERTER, COLORANTS AND CATALYSTS PRIOR TO USE, READ ALL WARNING LABELS. ANY MIXTURE OF COMPONENTS WILL HAVE HAZARDS OF ALL COMPONENTS. FOLLOW ALL PRECAUTIONS. IF SPRAYING THIS MATERIAL, KEEP SPRAY BOOTHS CLEAN. AVOID BUILDUP OF SPRAY DUST OR OVERSPRAY IN BOOTHS OR DUCTS.

KEEP OUT OF REACH OF CHILDREN

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TRW-02743

0908-4128

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

(BULK)
9-1-84

SECTION I

MANUFACTURER'S NAME WD-40 Company		EMERGENCY TELEPHONE NO. 619/275-1400
ADDRESS (Number, Street, City, State, and ZIP Code) 1061 Cudahy Place (92110), P. O. Box 80607, San Diego, California 92138-9021		
CHEMICAL NAME AND SYNONYMS Organic Mixture		TRADE NAME AND SYNONYMS WD-40 Bulk Liquid
CHEMICAL FAMILY	FORMULA	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS Not Applicable			BASE METAL Not Applicable		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Aliphatic petroleum distillates (Stoddard Solvent) 619/275-1400 Over	70	500ppm
Petroleum Base Oil (619/275-1400) Over	20	
Proprietary corrosion inhibitors, rust preventatives, wetting agents (none of which constitute any special hazard from a toxicity or handling standpoint)	Balance	

SECTION III PHYSICAL DATA

BOILING POINT (°F.) (initial minimum)	300°F.	SPECIFIC GRAVITY (H ₂ O=1)	.800 ⁷⁰ °F.
VAPOR PRESSURE (mm Hg.) not determined		PERCENT VOLATILE BY VOLUME (%)	74%
VAPOR DENSITY (AIR=1) greater than 1		EVAPORATION RATE (_____=1)	
SOLUBILITY IN WATER	Insoluble	(forms unstable emulsion)	
APPEARANCE AND ODOR Slightly cloudy, light amber liquid, slight characteristic odor.			

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Tag Open Cup 110° F. (Minimum)	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA CO ₂ , Dry Chemical, Foam			
SPECIAL FIRE FIGHTING PROCEDURES None			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

TRW-02744

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

500 PPM

EFFECTS OF OVEREXPOSURE Drying of skin, eye irritation, inhalation of vapor may cause anesthesia, headache, dizziness, nausea & upper respiratory irritation. Swallowing can cause irritation, nausea, vomiting and diarrhea. Aspiration into lungs can cause chemical pneumonitis.

EMERGENCY AND FIRST AID PROCEDURES

For ingestion, do not induce vomiting, call a physician. For eye contact, flush with plenty of water, remove contact lenses if worn. For skin contact, wash with soap and water, apply skin cream. For inhalation, remove to fresh air, give artificial respiration if necessary; if breathing is difficult, give oxygen.

SECTION VI REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

Strong oxidizing materials

HAZARDOUS DECOMPOSITION PRODUCTS

None

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb small quantities on suitable absorbent. Large quantities should be contained and pumped into storage tank.

WASTE DISPOSAL METHOD

Incinerate liquid; bury saturated absorbent in land fill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

None required

SPECIAL

None required

MECHANICAL (General)

None required

OTHER

None required

PROTECTIVE GLOVES

None required

EYE PROTECTION

None required

OTHER PROTECTIVE EQUIPMENT

None required

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep from open flame. Do not take internally.

Avoid excessive inhalation of spray particles.

OTHER PRECAUTIONS

0908-4130

TRW-02745

EMI INTERNATIONAL CORPORATION
21441 Hoover Road, Warren, MI 48089

24-Hour EMERGENCY Phone Number
313-497-9129

Page 1 of 2

REVISION: 3/18/88

MATERIAL SAFETY DATA SHEET

RECEIVED

May be used to comply with OSHA's Hazard Communication Standard,
29CFR 1910.1200. Standard must be consulted for specific requirements.

Section I

AUG 15 1988

Product Trade Name: UDYLITE: Wetting Agent 62A

Proprietary Formulation

ENVIRONMENTAL/SAFETY

Hazardous Components

Section II

CAS No.

Percentage

TLV OSHA

ACGIH

Listed: NTP/IARC/OSHA Z/EPA

C=Carcinogen H=Hazardous/Toxic T=Teratogen N=Neurotoxic T=Toxicogen

Formaldehyde	50-00-0	< 0.01	1.0 mg/m ³ TWA	OSHA Z-2/H	NTP C
			2.0 ppm 15 min. STEL		
			C/A-2 suspected human carcinogen		

Physical Data

Section III

Appearance and Odor: Light yellow liquid with aromatic odor.

Solubility in Water:

Negligible <0.1%

Slight 0.1-1.0%

Moderate 1.0-10.0%

Appreciable >10.0%

Complete(all proportions) X

Boiling Point

N/A

Vapor Pressure

N/A

Percent Volatile by Volume

N/A

Evaporation Rate

N/A

Specific Gravity

> 1.0

pH

6.0

Fire and Explosion Hazard Data

Section IV

Flash Point

None

Flammable/Explosive Limits LEL N/A UEL N/A

(method used)

NFPA Code (0-4)

Health 0 Flammability 0 Reactivity 0

Extinguishing Media

Product will not burn.

Special Fire-

Use media suitable for surrounding fire.

Fighting Procedures

Unusual Fire and

None known.

Explosion Hazards

Health Hazard Data

Section V

Threshold Limit Value

None known or established.

Effects of Overexposure:

Acute:

Possible eye and skin irritant.

Chronic:

None expected.

Principal Route of Exposure:

Contact.

Emergency First Aid Procedures:

Eye

Flush with a directed stream of water for 15 minutes. Seek medical attention.

Skin

Wash with soap and water.

Inhalation

Remove to fresh air.

Swallowing

Drink water (2-3 glasses) to dilute. Seek medical attention.

TRW-02746

0908-4131

Product Trade Name Wetting Agent 62AReactivity DataSection VIStability: Stable X Unstable _____Incompatibility
(Materials to Avoid): None knownHazardous Decomposition
Products: NoneHazardous Polymerization May Occur _____ Will Not Occur XSpill or Leak ProceduresSection VII

Steps to be taken in case material is released or spilled:

Contain and place into a container suitable for transportation to a licensed waste treatment facility.Waste Disposal Method Licensed waste treatment facility.EPA I.D. Number N/A RQ N/ASpecial Protection InformationSection VIII

Ventilation:

Local Exhaust YesRespiratory Protection No

Protective Clothing:

Gloves butyl rubber or neopreneBoots NoChemical Safety Goggles YesOther: NoFull Face Shield NoNote: Eye Fountain and Safety Shower must always be available.Special PrecautionsSection IXHandling & Storage No special requirements.Other NoneShipping InformationSection XDOT Proper Shipping Name NoneHazard Class NoneDOT Label(s) NoneIATA Class: N/APacking Group: N/AIMDGC Class: N/APacking Group: N/APrepared by: Carl N. GilsdorfDate 3/18/88

Carl N. Gilsdorf, Manager, Quality Assurance

This form has been prepared and reviewed by technically knowledgeable people and is based on information OMI International Corporation believes to be reliable. This information is provided solely to provide health and safety guidelines and is not to be intended for any other purpose.

TRW-02747

0908-4132

NFPA Code
Health 2
Flammability 3
Reactivity 0

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 8728-3W
DATE OF PREP. January 12, 1989

Section I

MANUFACTURER: RAFFI & SWANSON, INC.
100 EAMES STREET
WILMINGTON, MA 01887

MANUFACTURERS' CODE IDENTIFICATION:

White Enamel- 8728

EMERGENCY TELEPHONE NO.: 617-933-4200

PRODUCT CLASS: Solvent Based Compound

TRADE NAME: None

THIS PRODUCT IS A MIXTURE CONTAINING ONE OR MORE HAZARDOUS INGREDIENTS.

INFORMATION ON THE COMPOSITION OF RAFFI & SWANSON, INC. PRODUCTS IS CONFIDENTIAL PROPRIETARY INFORMATION AND IS PROVIDED SOLELY TO AID IN SAFE HANDLING OF THESE MATERIALS. USE OR DISCLOSURE FOR ANY OTHER PURPOSE IS EXPRESSLY FORBIDDEN.

Section II — HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NUMBER	APPROX. PERCENT BY WEIGHT	TLV		LEL % BY VOL	VAPOR PRESSURE mm of Hg
			PPM	mg/M ³		
Xylol †	1330-20-7	43	100		1.0	5.9
n-Butyl Alcohol-Skin †	71-36-3	6	50		1.4	4.3
Formaldehyde *C* †	50-00-0	.54	1		--Not Applicable--	

† Subject to the reporting requirements of EPA Reg. 40 CFR 372 (SARA Title III, Sec. 313).
C indicates a carcinogen or suspect carcinogen according to ACGIH, OSHA, NTP or IARC.

Section III — PHYSICAL DATA

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

VAPOR DENSITY: ☒ HEAVIER ☐ LIGHTER, THAN AIR

BOILING RANGE: 243°-291°F PERCENT VOLATILE BY VOL: 64%

WEIGHT PER GAL: 9.44#

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

FLASH POINT (closed cup): 81°F lowest

LEL: 1.0%

DOT: Flammable Liquid

flashing component

OSHA: Flammable Liquid-Class IB

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from heat, sparks and open flame. Do not apply to hot surfaces. Closed containers may explode when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective. Water may be used to cool closed containers. Irritating or toxic gases may be present. Use self-contained breathing apparatus.

TRW-02748

Section V — HEALTH HAZARD DATA (Based on data for individual ingredients)**THRESHOLD LIMIT VALUE** - See Section II**EFFECTS OF OVEREXPOSURE****CHRONIC TOXICITY:** See Section IX.**INHALATION:** Vapor irritating to eyes, nose, and throat. Can cause headache, dizziness, nausea, weakness, loss of consciousness. Prolonged overexposure may cause permanent injury.**SKIN:** Penetrates skin.

Prolonged and repeated contact may cause drying of the skin, and absorption of harmful amounts.

EYE CONTACT: Burning and irritation.**INGESTION:** Do not take internally. May cause nausea, vomiting, diarrhea and other toxic effects.**EMERGENCY AND FIRST AID PROCEDURES****INHALATION:** Provide fresh air. Give artificial respiration or oxygen if necessary. CALL A PHYSICIAN.**SKIN:** Wash thoroughly with soap and water. Remove contaminated clothing and shoes. Wash clothes thoroughly before re-use.**EYE CONTACT:** Flush with water for at least 15 minutes. SEE PHYSICIAN.**INGESTION:** DO NOT INDUCE VOMITING.

If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. CALL A PHYSICIAN.

Section VI — REACTIVITY DATA**STABILITY:** ☐ UNSTABLE ☒ STABLE**HAZARDOUS POLYMERIZATION:** ☐ MAY OCCUR ☒ WILL NOT OCCUR**HAZARDOUS DECOMPOSITION PRODUCTS:** Combustion produces carbon monoxide and carbon dioxide. Unidentified organic compounds may be formed.**MATERIALS AND CONDITIONS TO AVOID:** Strong acids, strong alkalis, strong oxidizers.**Section VII — SPILL OR LEAK PROCEDURES****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Remove all sources of ignition. Avoid breathing vapors. Ventilate area. Remove with inert absorbent and non-sparking tools.**WASTE DISPOSAL METHOD:** Incinerate in approved facility. Do not incinerate closed containers. Dispose in accordance with local, state and federal regulations.**Section VIII — SPECIAL PROTECTION INFORMATION****RESPIRATORY PROTECTION:** Avoid breathing concentrated vapors or overspray particles if sprayed. In confined or poorly ventilated areas, use NIOSH approved mask with chemical canister or supplied air.**VENTILATION:** Provide general mechanical ventilation or local exhaust ventilation sufficient to keep concentration of solvent vapors below 50 PPM**PROTECTIVE GLOVES:** Use chemical resistant, impervious gloves for contact.**EYE PROTECTION:** Safety goggles or face shield where splashes can occur.**OTHER PROTECTIVE EQUIPMENT:****Section IX — SPECIAL PRECAUTIONS****PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:** ☒ FLAMMABLE ☐ COMBUSTIBLE

Keep in closed containers. Avoid sparks or flame when handling. Can be stored under ambient conditions. Keep closures tight and containers upright to prevent leakage.

OTHER PRECAUTIONS: Avoid contact with the skin. Use good personal hygiene practices. Wash hands thoroughly before eating/drinking/smoking/using toilet facilities.

Intention of formaldehyde has been shown to cause cancer in laboratory animals.

TRW-02749



MAN-GILL CHEMICAL CO.

23000 ST. CLAIR AVE. • CLEVELAND, OHIO 44117 • 800-328-9745

EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

Dept
230

MATERIAL SAFETY DATA SHEET

07878

Section I

Identity
WHITE TINT BASE ENAMEL

Date Prepared 03/27/90

Date Revised 12/20/88

NFPA CODE:

HEALTH: 3

FLAMMABILITY: 3

REACTIVITY: 1

Section II - Hazardous Ingredients

Hazardous Ingredients	SARA 313	CAS #	OSHA - PEL	ACGIH TLV-TWA	Other Hazard
ISOBUTYL ALCOHOL (ISOBUTANOL)		78-83-1	100 PPM	50 PPM	FLAMMABLE
METHYL AMYL KETONE (2-HEPTANONE)		110-43-0	100 PPM	50 PPM	COMBUSTIBLE
TITANIUM DIOXIDE		NIOSH - 455	MG/CUM		
XYLENE	Not > 15 %	13463-67-7	15 MG/CUM	10 MG/CUM	TOTAL DUST
ETHYLBENZENE	Not > 05 %	1330-20-7	100 PPM	100 PPM	FLAMMABLE
BUTYL CELLOSOLVE (2-BUTOXYETHANOL)	Not > 15 %	NIOSH - 100 PPM; (C) - 200 PPM/10M;		ACGIH STEL - 150 PPM	
FORMALDEHYDE	Not > 05 %	100-41-4	100 PPM	100 PPM	FLAMMABLE
			ACGIH STEL - 125 PPM		
		111-76-2	25 PPM SKIN	25 PPM SKIN	COMBUSTIBLE
			STEL - 75 PPM		
		50-00-0	1 PPM	1 PPM	STEL - 2 PPM

*NIOSH POTENTIAL OCCUPATIONAL CARCINOGENS

Section III - Physical/Chemical Characteristics

Boiling Point	243-300 DEG F	Specific Gravity (H2O=1)	1.14
Vapor Pressure (mm Hg)	NOT DETERMINED	Percent Volatile by Volume (%)	65
Vapor Density (AIR=Reference)	HEAVIER	Evaporation Rate (ETHER=Reference)	SLOWER
Water Soluble	NO		
Appearance and Odor	WHITE LIQUID, MILD ODOR		

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
79 DEG F TCC	LOWEST VALUE	1.0	
Extinguishing Media	CARBON DIOXIDE. DRY CHEMICAL.		

Special Fire Fighting Procedures IF EXPOSED TO HEAT, PRESSURE WILL BUILD UP IN CONTAINER.

TRW-02750

METAL PROCESSING SYSTEMS

0908-4135



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MATERIAL SAFETY DATA SHEET

WHITE TINT BASE ENAMEL

07878

Section IV - Fire and Explosion Hazard Data Cont.

Unusual Fire and Explosion Hazards A STRAIGHT WATER STREAM WOULD SPREAD FIRES. STATIC ELECTRICITY COULD CAUSE IGNITION.

Section V - Reactivity Data

STABILITY	Unstable	Conditions to Avoid
	Stable	* AVOID PROLONGED STORAGE AT ELEVATED TEMPERATURES.

INCOMPATIBILITY (Materials to Avoid)
STRONG OXIDIZERS, ALKALIES

Hazardous Decomposition Products
OXIDES OF CARBON, ACID FUMES, ORGANIC COMPS, ALDEHYDES, OTHER ORGANICS

HAZARDOUS	May Occur	Conditions to Avoid
POLYMERIZATION	Will Not Occur	* NONE

Section VI - Health Hazard Data

Primary Routes of Entry: Inhalation? * Skin? * Ingestion? *

Effects of Overexposure IRRITATING TO EYES, NOSE & THROAT. INHALATION MAY CAUSE DIZZINESS, EXCITEMENT, DROWSINESS & STAGGERING GAIT. INGESTION MAY CAUSE NAUSEA, VOMITING & ABDOMINAL PAIN. EXPOSURE TO HIGH LEVELS OF VAPOR MAY CAUSE REVERSIBLE DAMAGE TO KIDNEYS & LIVER, SKIN RASH & REVERSIBLE EYE DAMAGE. MAY CAUSE HEMOLYSIS & HEMOGLOBINURIA. TARGET ORGANS AFFECTED - CNS, EYES, GI TRACT, BLOOD, LIVER, KIDNEYS & SKIN.

Medical Conditions Aggravated by Overexposure
NONE FOUND

Emergency and First Aid Procedures:

Eye (Contact): FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR 15 MINUTES AND CONTACT PHYSICIAN IMMEDIATELY.

Skin (Contact): WASH WITH SOAP AND WATER. CONTACT PHYSICIAN IF IRRITATION PERSISTS.

Ingestion (Ingestion): DO NOT INDUCE VOMITING. DRINK LARGE QUANTITIES OF WATER AND/OR MILK. CONSULT PHYSICIAN IMMEDIATELY.

Inhalation (Breathing): REMOVE TO FRESH AIR. AID IN BREATHING IF NECESSARY AND GET IMMEDIATE MEDICAL ATTENTION IF NEEDED.

Section VII - Precautions for Safe Handling & Use

Steps to be taken in Case Material is Released or Spilled

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. REMOVE IGNITION SOURCES. CONTAIN SPILL. ABSORB WITH INERT MATERIAL AND DISPOSE.

TRW-02751

METAL PROCESSING SYSTEMS

0908-4136



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MATERIAL SAFETY DATA SHEET

WHITE TINT BASE ENAMEL

07878

Section VII - Precautions for Safe Handling & Use Cont.

Waste Disposal Method: DISPOSE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

Precautions to be Taken for Handling and Storage DO NOT STORE OR USE NEAR HEAT, SPARKS, OR FLAME. DO NOT STORE NEAR COMBUSTIBLE MATERIAL. DO NOT STORE IN DIRECT SUNLIGHT. WHEN SANDING DRY FILM, USE NIOSH APPROVED DUST MASK. KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE.

Other Precautions SHOWERS AND EYE WASH FOUNTAINS SHOULD BE MADE AVAILABLE WHERE CHEMICALS ARE USED.

Section VIII - Control Measures

Respiratory Protection (Specify Type)

USE NIOSH APPROVED EQUIPMENT WHEN AIRBORNE EXPOSURE LIMITS ARE EXCEEDED.

VENTILATION Local RECOMMENDED TO MAINTAIN BELOW TLV
Mechanical

Protective Gloves
NEOPRENE RUBBER

Eye Protection
SPLASH GOGGLES OR FACE SHIELD

Other Protective Clothing or Equipment

PROTECTIVE CLOTHING SUFFICIENT TO PREVENT SKIN CONTACT.

Work/Hygienic Practices

WASH THOROUGHLY BEFORE EATING, SMOKING OR USING TOILET FACILITIES.

Section IX - Additional Information

D.O.T. Proper Shipping Name: PAINT

D.O.T. Hazard Class: FLAMMABLE LIQUID

D.O.T. Identification #: UN-1263

TRW-02752

THE INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED TO BE DEPENDABLE AND IS ACCURATE TO THE BEST OF THE SELLER'S KNOWLEDGE; HOWEVER, THE SELLER MAKES NO WARRANTY WHATSOEVER, EXPRESSED, IMPLIED, OR OF MERCHANTABILITY REGARDING THE ACCURACY OF SUCH DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. THE SELLER ASSUMES NO RESPONSIBILITY FOR INJURY TO THE BUYER OR TO THE THIRD PARTY PERSONS OR FOR ANY DAMAGE TO ANY PROPERTY AND BUYER ASSUMES ALL SUCH RISK.

METAL PROCESSING SYSTEMS

0908-4137

WIRE

INDUSTEEL

WAREHOUSE STOCK FOR METAL
CONSUMING INDUSTRIES

Industrial Steel & Wire Co.

HOME OFFICE / 2222 N. SPRINGFIELD AVE. • CHICAGO, IL. 60647 • (AREA 312) 772-4848
TELEX NO. 253091 CABLE ADDRESS: INDUSTRIEL CHICAGO

EAST WAREHOUSE / 32 VALLEY ST. • BRISTOL, CT. 06010 • (203) 589-7755

MID-WEST WAREHOUSE / 5131 W. 164th ST. • BROOKPARK, OH. 44142 • (216) 433-4150

WEST WAREHOUSE / 6334 CHALET DR. • CITY OF COMMERCE, CA. 90040 • (213) 928-0485

TRW FASTERNERS DIVISION
195 BEINEY STREET

CAMBRIDGE MA 02142

Enclosed is a Material Safety Data Sheet (MSDS) covering the wire products you purchase from us.


Our wire products in their usual physical forms do not represent any health hazard, although subsequent operations such as welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, etc., may produce potentially hazardous fumes or dusts.

We provide this information as general data, which should not be construed as a determination that our products are hazardous chemicals.

We will supply any future revisions that may become necessary.

Sincerely,

INDUSTRIAL STEEL & WIRE CO.


Harry Furlong
Quality Control Manager

TRW-02753

0908-4138

INDUSTRIAL STEEL & WIRE COMPANY

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION:

Address: 2222 No. Springfield Avenue
Chicago, Illinois 60647

Telephone: (312) 772-4848

Date: April 21, 1986

1. PRODUCT IDENTIFICATIONS:

Steel Low Alloy Wires
Stainless Steel Alloy Wires
Copper Alloy Wires

2. TYPICAL CHEMICAL COMPOSITION:

The table on the following page covers materials
contained in the products as shipped.

0908-4139

TRW-02754

2-A. TYPICAL CHEMICAL COMPOSITION BY WEIGHT ELEMENTS > 1%

WIRE TYPE:	IRON	MANGANESE	CHROMIUM	CARBON	NICKEL	COPPER	ZINC	TIN	BERYLLIUM	LEAD	SILICON	ALUMINUM	TRACE ELEMENTS
LOW ALLOY STEEL:	95.0	0.25-2.0	0.01-2.0	0.01-1.2		0.01-1.0					1.2-1.6		None > 1.0%
Music Wire													
Hard Drawn													
Oil Temper													
Chr. Silicon													
STAINLESS STEEL Type 302/304	70.0	0.01-2.0	17.0-20.0		8.0-10.5								None > 1.0%
17-7 STAINLESS STEEL	74.0		16.0-18.0		6.5-7.75							0.75-1.5	None > 1.0%
BRASS													
Alloy 260						68.5-71.5	29.0						None > 1.0%
Alloy 360						60.0-63.0	35.0					2.5-3.7	None > 1.0%
PHOSPHOR BRONZE						95.0		4.2-5.8					None > 1.0%
Alloy 510													
BERYLLIUM COPPER						97.0			1.8-2.0				None > 1.0%

TRW-02755

CAS Number	7439-89-6	7439-96-5	7740-47-3	7740-44-0	7740-02-0	7740-58-0	7440-66-6	7440-31-5	7440-41-7	7439-98-7	7740-21-3	7429-90-5	N/A
Permissible Air Level:													

OSHA PEL *	10	5	0.1	N/A	1	0.1	5	2	0.002	15	2	-	
ACGIH TLV *	5	1	0.05	N/A	1	0.2	5	2	0.002	10	5	5	

*mg/m³ units, in 8-hour time - weighted average concentrations.

Blank spaces above represent less than 1.0%.

28. COATINGS:

METALLIC COATINGS:

Our customers may specify a metallic coating on certain wires:

<u>Type</u>	<u>Element</u>	<u>CAS Number</u>	<u>% Weight</u>		<u>Permissible Air Level</u>	
			<u>%Coating</u>	<u>% Product</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Cadmium Alloy	Cadmium	7440-43-9	80	> 1%	0.1	0.1
	Zinc	7440-66-6	20	> 1%	5.0	5.0
Tin	Tin	7440-31-5	99.9	> 1%	5.0	5.0
Nickel	Nickel	7440-02-0	99.0	> 1%	1.0	1.0
Silver	Silver	7440-22-4	99.9	> 1%	0.01	0.1
Galvanized	Zinc	7440-66-6	99.0	> 1%	5.0	5.0

Note: Coatings are less than 1% of finished product.

NON-METALLIC COATINGS:

See Additional or Miscellaneous Information , Section 9.

3. PHYSICAL DATA:

Our products are solid metals in wire form.

4. FIRE AND EXPLOSION HAZARD DATA:

No hazard. Not combustible in air.

5. REACTIVITY:

Stability: Stable.

Incompatibility: Avoid acids, bases or oxidizers.

0908-4141

Hazardous Decomposition Products: Fumes and/or gases produced from welding or burning operations.

Polymerization: Will not occur.

TRW-02756

6. HEALTH HAZARD DATA:

USUAL ROUTE(S) OF ENTRY: Inhalation or skin contact.

EFFECTS OF OVEREXPOSURE: In the inert form, wire should not present any toxic effects. However, hazardous fumes or dusts may result during heating, grinding, cutting, welding, brazing, or related operations. Metallic and non-metallic coatings on the wire should be considered in the

Additional and Miscellaneous Information section. Overexposure to wire fumes or dusts may cause the following adverse health effects:

- Aluminum: No known health effect. Generally considered to be in the nuisance dust category.
- Beryllium: Irritation of skin, eyes, and mucous membranes. Excess concentrations can cause a serious lung disease: berylliosis. Potential cancer hazard.
- Chromium: The dusts of chromium metal are usually reported to be relatively non-toxic, although there are reports of a nodular type of pulmonary disease with impairment of lung function. Some insoluble chromium compounds are suspected carcinogens.
- Copper: "Metal fume fever" - symptoms may include cough, headache, metallic taste in mouth, nausea, fever, chilling, pain in muscles and joints. This condition is transitory, usually lasting one day or less.
- Iron: Siderosis, no fibrosis.
- Lead: Lead intoxication may result, with symptoms of anemia, insomnia, weakness, constipation, neural and gastrointestinal disorders.
- Manganese: Pneumonitis, CNS involvement, including irritability, difficulty in walking, speech disorders, compulsive behavior, mask-like face and a Parkinson - like syndrome.
- Nickel: Respiratory irritation and pneumonitis. Several nickel compounds, including nickel oxide, are suspected lung and nasal carcinogens.
- Silicon: May produce X-ray changes in the lungs without disability.
- Tin: The toxicity of inorganic tin compounds is generally low. Exposure to the dust or fumes of tin oxide can result in a benign pneumoconiosis called stannosis. No tissue reaction or pulmonary dysfunction has been associated with this lung condition.
- Zinc: Inhalation of zinc dust or zinc oxide fumes can cause a flu-like illness called metallic fever.

FIRST AID PROCEDURES:

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TRW-02757

1. Inhalation: Move to fresh air, or well ventilated area. Seek medical advice.
2. Skin Contact: Wash affected area with soap and water, avoid further contact with surface coating. Seek medical advice.
3. Eye Contact: Irrigate well with clean water. Seek medical advice.
4. Ingestion: Normally N/A. Seek medical advice.

7. SPILL, LEAK, AND DISPOSAL INFORMATION

Steps To Be Taken in Case Material is Released or Spilled: N/A

Waste Disposal Method:

Any excess product can be recycled for further use, disposed in a permitted hazardous waste landfill, or disposed by other methods which are in accordance with local, state and federal regulations.

8. SPECIAL PROTECTION INFORMATION and SPECIAL PRECAUTIONS:

Respiratory Protection:

Use a properly fitted NIOSH-approved dust/fume respirator, when Engineering controls are not sufficient to lower exposure levels below the applicable exposure limit.

Ventilation:

Should be sufficient to maintain T.L.V. exposure levels below the applicable exposure limit.

Handling and Storage:

During welding, cutting, or grinding, precautions should be taken to control airborne particulate and fumes. Arc or spark generated when welding or burning on these products could be a source of ignition for combustible or flammable materials.

Eye Protection:

Safety glasses are strongly recommended.

Skin Protection:

Protective clothing and gloves are strongly recommended when handling any wire or wire parts.

9. ADDITIONAL OR MISCELLANEOUS INFORMATION:

Nonmetallic coating may be applied to the surface of steel wire. These are usually classified as protective coatings or lubricants. These are > 1% total weight of products, and may include:

- rust preventative oils
- zinc phosphate based coatings
- mineral filled sodium soaps
- lime filled calcium soaps

The possible presence of these coatings on steel products should be recognized and considered when evaluating potential employee health hazards and exposures during welding or other dust/fume generating activities.

TRW-02758

This document has been prepared solely for the intent of compliance with the provisions of Subpart 2 of Part 1910 of Title 29 of the Code of Federal Regulations, paragraph 1910.1200. INDUSTRIAL STEEL & WIRE CO., MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTIES ARISING FROM THE COURSE OF DEALING OR TRADE.

0908-4143



KELLEY WOOD PRODUCTS, INC.

109 River Street • Fitchburg, MA 01420-3093 • Tel (508) 345-7531 • Fax (508) 343-3070

*For
under wood*

June 1, 1994

AMERICAN ENGINEERED COMPONENTS CORP
265 THIRD ST
CAMBRIDGE MA 02142

To You Our Valued Customer,

OSHA has wood dust on its list of hazardous materials in its Hazard Communication standard, set forth in Title 29 CFR Section 1910.1200. As a result, we are required by law to inform you of the potential dangers associated with exposure to wood dust. These potential dangers include possible skin and eye irritation, respiratory or other chronic or irreversible tissue damage, and narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue or materially reduce work efficiency. We want to emphasize that these potential maladies vary greatly according to wood species, type and level of exposure, and duration of exposure. Adequate ventilation and cleanliness in any woodworking area greatly reduces the incidence of any of these potential problems. The particulars of the hazards of wood dust and suggested handling methods are outlined in the enclosed updated Material Safety Data Sheet.

Very truly yours,

KELLEY WOOD PRODUCTS, INC.

Enclosure: 1 MSDS

15mg/m³

0908-4144

TRW-02759

MATERIAL SAFETY DATA SHEET

WOOD DUST, HARDWOODS & SOFTWOODS

Examples: Oak, Maple, Hickory, Beech, Poplar, Birch, Mahogany, Walnut, Ash, Pine, etc.; OHS88900

CERCLA RATINGS (Scale 0-3): Health = 3, Fire = 3, Reactivity = 0, Persistence = 0

NFPA RATINGS (Scale 0-4): Health = 3, Fire = 3, Reactivity = 0

COMPONENTS AND CONTAMINANTS

COMPONENT: Wood Dust (General) Hardwoods, Softwoods, Special Note: Western Red Cedar

PERCENT: 100.0

EXPOSURE LIMITS: Hardwood & Softwood Dust

DUST - HARDWOOD & SOFTWOOD: 5mg/m³ ACGIH TWA - except Western Red Cedar 2.5mg

SPECIAL NOTE: "PEL" AND "TLV" LIMITS

The Eleventh Circuit of the U.S. Court of Appeals vacated the permissible exposure limits that OSHA issued January 19, 1989. They have ceased enforcement of the 1989 PELs and have reverted to enforcement of the previous limits.

The section in the federal register entitled Organic Dusts of the August 5, 1993 memorandum give specifics for the wood dust PEL. Wood dust will be regulated under the classification Particulates Not Otherwise Regulated (PNOR) and will have a PEL of 15mg/m³ as an eight hour weighted average.

An explanation of the term Threshold Limit Value (TLV). This is the exposure limit recommended by a private professional association called the American Conference of Governmental Industrial Hygienists (ACGIH). These are recommended only and do not carry the weight of the law. **HOWEVER**, the Hazard Communication Standard requires that this TLV as well as the PEL be listed on your MSDS forms. At present, the TLV for hardwoods is one milligram per cubic meter (1mg/m³) of air and the TLV for softwoods is five milligrams per cubic meter (5mg/m³). Both of these is on the eight hour weighted average concentration.

EMERGENCY TELEPHONE NO.

(800) 424-9300 CHEMTREC

PHYSICAL DATA

DESCRIPTION: Dust of varying size, odor, texture and color.

FIRE AND EXPLOSION DATA

TRW-02760

FIRE AND EXPLOSION HAZARD: The finely divided wood dust presents a dangerous fire and explosion hazard when exposed to heat or flame. The larger dusts present a moderate to dangerous fire and explosion hazard when exposed to heat or flame.

CONDITIONS TO AVOID

Finely divided dusts may ignite easily. Larger dusts usually require longer exposure time to heat a flame before ignition occurs.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL: No special precautions indicated.

PROTECTIVE EQUIPMENT

VENTILATION: Provided local exhaust or general dilution ventilation. Ventilation equipment must be explosion-proof.

RESPIRATOR: The specific respirator selected must be based on the contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration. The following respirators are recommended based on the data found in the physical data, health effects and toxicity sections. They are ranked in order from minimum to maximum respiratory protection:

- * Dust mask, including single use.
- * Chemical cartridge respirator with an organic vapor cartridge(s) with dust filter.
- * Gas mask with organic vapor canister (chin style or front-or back-mounted canister) with a dust filter.
- * Type 'C' supplied-air respirator operated in the pressure-demand or other positive pressure or continuous-flow mode.
- * Self-contained breathing apparatus.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH

CONDITIONS: Self-contained breathing apparatus with full face piece operated in pressure demand or other positive pressure mode.

Supplied-air respirator with full face piece and operated in pressure demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.

CLOTHING: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

GLOVES: Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION: Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.

FIREFIGHTING MEDIA: Dry chemical, carbon dioxide, water spray or foam (1984 emergency response guidebook, DOT P 5800.3). For larger fires, use water spray, fog or foam (1984 emergency response guidebook, DOT P 5800.3).

FIREFIGHTING: Move container from fire area if possible. Do not scatter spilled material with more water than needed for fire control. Dike fire control water for later disposal (1984 emergency response guidebook, DOT P 5800.3, Guide Page 31). Use agents suitable for type of surrounding fire. Avoid breathing hazardous vapors, keep upwind.

TOXICITY

Positive human carcinogen (IARC, NTP) (Furniture and cabinet making industry). An excess risk of nasal adenocarcinoma has been reported in workers in this industry. This excess risk occurs mainly in those that are exposed to wood dusts.

Some studies have suggested that the incidence of nasal cancers and Hodgkin's disease may be increased in workers in the lumber and sawmill (including logging), carpentry and joinery trades and the pulp and paper industries. Wood dust is an eye, skin and mucous membrane irritant and a skin sensitizer.

HEALTH EFFECTS AND FIRST AID

INHALATION: Irritant/ Sensitizer/ Carcinogen

Acute exposure, depending upon the species of tree, inhalation of wood dust may cause symptoms ranging from sneezing, coughing, rhinorrhea, fever, muscular aches and pains, labored breathing, nasopharyngitis, laryngitis, and bronchitis. The irritation caused by some wood dusts may cause sinus inflammation and nose bleeds. These symptoms have been attributed to an allergic type reaction and appear to be very species specific. Pulmonary sensitization to specific species has been documented. Pneumonitis or extrinsic allergic alveolitis may also occur among individuals that are susceptible to the wood dust. Studies have shown that this condition may be caused by the wood dust itself. There is the possibility that microorganisms inhabiting the wood may also be responsible for causing this condition in some individuals. Many of the more exotic woods have been reported to cause nausea and vomiting following inhalation; these woods have also been reported to cause dizziness, giddiness, and cardiac arrhythmias.

Chronic exposure, repeated or prolonged exposure, may result in asthma and/or rhinitis. Studies have shown that occupational asthma is the result of irritation of the dust. Many woods are composed of biologically active chemical agents and these agents may play a role in causing the asthma's. Cases of pulmonary fibrosis have been reported in individuals with long term exposure to wood dust. Nasal carcinomas, especially adenocarcinoma, have been documented in workers in the furniture and cabinet-making industries. This excess risk occurs mainly in those exposed to wood dust. An increase in Hodgkin's disease has been seen in other industries that are involved in woodworking, especially sawmills. Wood dusts appear to produce a mucostatic effect on the body. A study has suggested that this mucostatic action may be of importance in the development of nasal adenocarcinomas in furniture workers because of the prolonged retention of wood dust in the nasal cavity.

FIRST AID: Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Get medical attention immediately.

SKIN CONTACT: Irritant/ Sensitizer

Acute Exposure - All wood dusts have been implicated in causing irritation. This irritation may be the result of mechanical means and/or chemical agents. Mechanically caused irritation is the result of dust particles being trapped in the clothes of the worker and producing abrasions. The chemical agents may cause contact dermatitis with redness, scaling, and itching. Severe cases may progress to blistering of the skin. The areas that are most often affected are the face, eyelids, hands and forearms. Splinters from some hardwoods may produce septic wounds that may take an extremely long time to heal.

Chronic exposure, repeated or prolonged exposure, may result in allergic dermatitis. Sensitization reactions may be mild with only erythema and irritation, but more often there is vesicular or papular dermatitis which may progress to chronic dermatitis.

FIRST AID: A thorough cleansing of the body, each day as a minimum, is necessary in the prevention of adverse reactions to wood dust. Any wound resulting from splinters or abrasions should be cleaned thoroughly. Splinters should be removed as quickly as possible by qualified medical personnel. If an infection from a splinter wound occurs, seek prompt medical attention. Remove and wash contaminated clothing at the end of each day.

EYE CONTACT: Irritant.

Acute exposure - Direct contact with wood dust may cause irritation and inflammation. Mechanical damage of the cornea may also occur.

Chronic exposure, repeated or prolonged exposure, may cause conjunctivitis.

FIRST AID: Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

INGESTION: Acute exposure - No data available. Chronic exposure - No data available.

FIRST AID: Treat symptomatically and supportively. Get medical attention immediately. If vomiting occurs, keep head lower than hips to prevent aspiration.

ANTIDOTE: No specific antidote. Treat symptomatically and supportively.

REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

INCOMPATIBILITIES: Strong oxidizers: Fire and explosion hazard.

DECOMPOSITION: Thermal decomposition products may include toxic oxides of carbon.

POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

MATERIAL SAFETY DATA SHEET

USG INDUSTRIES, INC.
101 S. Wacker Drive
Chicago, Illinois 60606

Date Issued 11/11/85
Emergency phone Day (312)321-4383
Night (312)321-4382

SECTION I

PRODUCT: DURON and DURATHRIFT Hardboard, Regular and Tempered, and/or coated
CHEMICAL FAMILY: Wood Fiber (Mixture)

SECTION II PRODUCT INGREDIENTS

(As Required By 29 CFR 1910.1200)

MATERIALS:	TLV	CAS #	%
Wood Fiber	5mg/M ³	None assigned	97-99
Oil, vegetable	10mg/M ³	68956-68-3	1-3

SECTION III PHYSICAL DATA

SOLUBILITY IN WATER: Nil
SPECIFIC GRAVITY (H₂O = 1): 0.9 - 1.2
APPEARANCE AND ODOR: Tan to brown board, low odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): None.
AUTOIGNITION TEMPERATURE: Variable. 390-500 °F
EXPLOSION LIMITS: Wood (saw) dust: Lower: 0.035 oz/ft³
Wood dust requires 0.040 Joules/minutes of energy for ignition and
can produce an explosion pressure of 113 psig max.
EXTINGUISHING MEDIA: Water, foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: Wood dust is readily combustible. If saw
dust is being produced from this product, it should be kept in a
cool, dry place away from ignition sources. Hot, humid storage can
result in spontaneous heating. Partially burned or scorched wood
dust can be hazardous to store. Avoid contact with oxidizing agents
and with drying oils.

0908-4149

TRW-02764

MATERIAL SAFETY DATA SHEET

USG INDUSTRIES, INC.
101 S. Wacker Drive
Chicago, Illinois 60606

DATE ISSUED 11/11/85
Emergency phone Day (312)321-4383
Night (312)321-4382

SECTION I

PRODUCT:

USG Cant Strip Base	USG Industrial Insulation Board
MARQUESA Building Board	USG Mobile Home Ceiling Board
Mobile Home MODULUX Ceiling Board	USG Sound Deadening Board
USG Building Board	USG Coreboard
USG Duplex Wallboard	USG Structural Filler, Lisbon Falls

CHEMICAL FAMILY: Wood Fiber (Mixture)

SECTION II

PRODUCT INGREDIENTS

(As Required By 29 C.F.R. 1910.1200)

MATERIALS:	TLV	CAS #	%
Wood Fiber	5mg/M ³	None assigned	85 - 98
Starch	10mg/M ³	09005-25-8	0.5 - 4.0
Clay	10mg/M ³	01332-58-7	None to 4.0
Titanium Dioxide	10mg/M ³	13463-67-7	None to 0.7
Calcium Carbonate	10mg/M ³	00471-34-1	None to 2.0

SECTION III

PHYSICAL DATA

SOLUBILITY IN WATER: Nil
SPECIFIC GRAVITY (H₂O = 1): 0.2 - 0.3
APPEARANCE AND ODOR: Brown colored board, low odor

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): None.
AUTOIGNITION TEMPERATURE: Variable. 390-500 °F
EXPLOSION LIMITS: Wood (saw) dust: Lower: 0.035 oz/ft³
Wood dust requires 0.040 Joules/minutes of energy for ignition and can produce an explosion pressure of 113 psig max.
EXTINGUISHING MEDIA: Water, foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: Wood dust is readily combustible. If saw dust is being produced from this product, it should be kept in a cool, dry place away from ignition sources. Hot, humid storage can result in spontaneous heating. Partially burned or scorched wood dust can be hazardous to store. Avoid contact with oxidizing agents and with drying oils.

0908-4150

TRW-02765

MATERIAL SAFETY DATA SHEET

USG INDUSTRIES, INC.
101 S. Wacker Drive
Chicago, Illinois 60606

DATE ISSUED 11/11/85
Emergency phone Day (312)321-4383
Night (312)321-4382

SECTION I

PRODUCT: CARLISLE HP Recovery Board
CHEMICAL FAMILY: Wood Fiber (Mixture)

SECTION II

PRODUCT INGREDIENTS
(As Required by 29 CFR 1910.1200)

MATERIALS:	TLV	CAS #	%
Wood Fiber	5mg/M ³	None assigned	92 - 93
Asphalt	5mg/M ³ (fumes)	08052-42-4	7 - 8

SECTION III PHYSICAL DATA

SOLUBILITY IN WATER: Nil
SPECIFIC GRAVITY (H₂O = 1): 0.2 - 0.3
APPEARANCE AND ODOR: Brown to black colored board, low odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): None.
AUTOIGNITION TEMPERATURE: Variable. 390-500 °F
EXPLOSION LIMITS: Wood (saw) dust: Lower: 0.035 oz/ft³
Wood dust requires 0.040 Joules/minutes of energy for ignition and can produce an explosion pressure of 113 psig max.
EXTINGUISHING MEDIA: Water, foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: Wood dust is readily combustible. If saw dust is being produced from this product, it should be kept in a cool, dry place away from ignition sources. Hot, humid storage can result in spontaneous heating. Partially burned or scorched wood dust can be hazardous to store. Avoid contact with oxidizing agents and with drying oils.

SECTION V HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

ACUTE: None known
CHRONIC: None known

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush saw dust from eyes with water. If irritation persists see physician.
SKIN: Wash with soap and water.
INHALATION: Remove from exposure
INGESTION: Call physician

0908-4151

TRW-02766

MATERIAL SAFETY DATA SHEET

USG INDUSTRIES, INC.
101 S. Wacker Drive
Chicago, Illinois 60606

DATE ISSUED 11/11/85
Emergency phone Day (312)321-4383
Night (312)321-4382

SECTION I

PRODUCT: USG Cant Strip Base, Asphalt Impregnated
USG Industrial Insulation Board, Impregnated and/or coated
and/or primed
USG Mobile Home Sheathing, Asphalt Impregnated and/or coated
USG Roof Insulation, Asphalt Impregnated and/or coated
USG Roof Leveling Board, Asphalt Impregnated
USG Shingle Backer Board, Asphalt Impregnated
USG Structural Filler, Asphalt Impregnated
USG WEATHERWOOD Sheathing, Asphalt Impregnated and/or coated
STRUCTODEK Roofing Substrate, Asphalt Impregnated
USG Roof Deck, Asphalt Impregnated
USG Structural Filler, Pilot Rock

CHEMICAL FAMILY: Wood Fiber (Mixture)

SECTION II

PRODUCT INGREDIENTS

(As Required By 29 CFR 1910.1200).

MATERIALS:	TLV	CAS #	%
Wood Fiber	5mg/M ³	None assigned	70 - 90
Asphalt	5mg/M ³ (fumes)	08052-42-4	0.5 - 30
Starch	10mg/M ³	09005-25-8	0.5 - 1.5
Clay	10mg/M ³	01332-58-7	None to 4
Titanium Dioxide	10mg/M ³	13463-67-7	None to 1.2
Calcium Carbonate	10mg/M ³	00471-34-1	None to 3.5

SECTION III

PHYSICAL DATA

SOLUBILITY IN WATER: Nil

SPECIFIC GRAVITY (H₂O = 1): 0.2 - 0.3

APPEARANCE AND ODOR: Brown to black colored board, low odor

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): None.

AUTOIGNITION TEMPERATURE: Variable. 390-500 °F

EXPLOSION LIMITS: Wood (saw) dust: Lower: 0.035 oz/ft³

Wood dust requires 0.040 Joules/minutes of energy for ignition and can produce an explosion pressure of 113 psig max.

EXTINGUISHING MEDIA: Water, foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Wood dust is readily combustible. If saw dust is being produced from this product, it should be kept in a cool, dry place away from ignition sources. Hot, humid storage can result in spontaneous heating. Partially burned or scorched wood dust can be hazardous to store. Avoid contact with oxidizing agents and with drying oils.

Health	1
Flammability	1
Reactivity	0
Personal Protection	B

HMIS Ratings

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

Health	1
Flammability	0
Reactivity	0
Specific Hazard	

NFPA Ratings

SECTION I

PRODUCT NAME WOOD PRESERVATIVE		BOWMAN PART NO. 22021 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 922-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 11/17/89
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Non-hazardous, Not regulated		
ADDITIONAL HAZARD CLASSES (as applicable) N.A.		
CHEMICAL FAMILY Epoxy & polymercaptop resins	FORMULA Mixture	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NUMBER	%W	%V	CHEMICAL NAME(S)	OSHA PEL	ACGIH TLV	Other Limits	Listed as Carcinogen NTP, IARC or OSHA 1910(z) (specify)
90-72-2	1.5		Tris (dimethylaminomethyl) phenol	5 ppm	NE	—	No
25068-38-6	21		Diglycidylether of bisphenol A	NE	NE	19.8 g/kg. oral LD50	No

ALL CHEMICAL COMPOUNDS MARKED WITH AN ASTERISK () ARE TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372.

SECTION III - PHYSICAL DATA

BOILING POINT N.A. °F °C	SPECIFIC GRAVITY (H ₂ O = 1) 0.9	
VAPOR PRESSURE @ °F °C mm Hg psi N.A.	PERCENT VOLATILE BY VOLUME (%) 0	PERCENT SOLID BY WEIGHT (%) 100
VAPOR DENSITY (AIR = 1) N.A.	EVAPORATION RATE (Ether = 1) nll	
SOLUBILITY IN WATER nll	PH = N.A.	
APPEARANCE AND ODOR Putty like substance, mercaptan odor		MATERIAL IS: PASTE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT None °F °C	method used N.A.	FLAMMABLE LIMITS	LEL None	UEL None
EXTINGUISHING MEDIA Water spray, foam, carbon dioxide, dry chemicals.				
SPECIAL FIRE FIGHTING PROCEDURES None				
UNUSUAL FIRE AND EXPLOSION HAZARDS Hazardous combustion products could include carbon monoxide, organic acids & aldehydes, oxides of sulfur & nitrogen.				

22021 (page 1 of 2)

N.A. - Not Applicable
N.E. - Not Established
N.D. - Not Determined

TRW-02768

C-2/89

0908-4153

SECTION V - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE AND CHRONIC - INCLUDE TARGET ORGAN EFFECTS) May cause skin and eye irritation in sensitive individuals. Chronic overexposure might cause sensitization or dermatitis.	
CONDITIONS TO AVOID Prolonged skin and eye contact. Do not ingest.	
SIGNS AND SYMPTOMS OF OVEREXPOSURE Irritation of skin and eye tissue.	
PRIMARY ROUTES OF ENTRY	Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify) Eye contact.
EMERGENCY AND FIRST AID PROCEDURES For skin contact wash with soap & water. For eye contact flush with water & consult physician if irritation persists.	
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE Dermatitis.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID None
	STABLE	X	
INCOMPATIBILITY (materials to avoid) None			
HAZARDOUS DECOMPOSITION PRODUCTS: Organic acids and aldehydes, oxides of sulfur & nitrogen, carbon monoxide.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Not hazardous to personnel or the environment. Dispose of in normal manner.	
WASTE DISPOSAL METHOD Incinerate or bury in landfill according to applicable regulations.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs.) None	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) None	
VOLATILE ORGANIC COMPOUND (VOC) as packaged, minus water)	<input type="checkbox"/> Theoretical _____ lb/gal None
	<input type="checkbox"/> Analytical _____ lb/gal None

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) None required		
VENTILATION	LOCAL EXHAUST (specify rate) Not required	SPECIAL None
	MECHANICAL (general) (specify rate) Not required	OTHER None
PROTECTIVE GLOVES (specify type) Polyethylene for prolonged use		EYE PROTECTION (specify type) Glasses
OTHER PROTECTIVE EQUIPMENT None required		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Avoid eye contact and excessive skin contact.	
OTHER PRECAUTIONS Wash hands with soap and water immediately after use.	TRW-02769